CCD-TR78/TR88/TR98/TR99/TR514/ TR590/TR590PK/TR614/TR714/TR814

RMT-713

SERVICE MANUAL

US Model
CCD-TR78/TR88/TR98/TR99/
TR514/TR614/TR714/TR814
Canadian Model
CCD-TR614
E Model
CCD-TR590/TR590PK
Hong Kong Model
CCD-TR590

Video8
Handycam

PHOTO : CCD-TR814

B MECHANISM

- CCD-TR590PK is model that carring bag are added in CCD-TR590.
- CCD-TR590PK is different from CCD-TR590 only in the accessory and packing materials.

For MECHANISM ADJUSTMENT, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ" (9-973-801-11).

SPECIFICATIONS

Video Camera Recorder
System
Video recording system
Two rotary heads, Helical scanning, FM system
Audio recording system
Rotary heads, FM system
Video signal
NTSC color, EIA standards
Usable cassette
8 mm video format cassette (standard 8 mm)
Recording/Playback time
SP mode: 2 hours (P6-120)
LP mode: 4 hours (P6-120)
Fastforward/rewind time
Approx. 5 min. (P6-120)
Image device
CCD (Charge Coupled Device)
Color temperature
Auto
Recommended illumination
More than 100 lx

Input and Output connectors
Video output
Phono jack, 1 Vp-p, 75 Ω, unbalanced
RFU DC OUT
Special minijack, DC 5 V
LANC jack
Stereo-mini-mini-jack (ø 2.5 mm)
General
Power requirements
On battery mounting surface 6.0 V (battery pack), 7.5 V (AC power adaptor)
Operating temperature
32°F to 104°F (0°C to 40°C)
Storage temperature
–4°F to +140°F (–20°C to +60°C)

AC power adaptor
Power requirements
110 – 240 V AC*, 50/60Hz
Power consumption
AC-V15: 18 W
AC-V16: 20 W
AC-V16A: 22 W
Output voltage
DC OUT in operation mode
AC-V15: 7.5 V, 1.6 A
AC-V16/V16A: 7.5 V, 1.8 A
Battery charge terminal
10 V, 1.1 A in charge mode
Application
Sony battery packs NP-33 (supplied), NP-60D, NP-C65, NP-66, NP-66H, NP-68, NP-80/80D, NP-98/98D

Operating temperature
32°F to 104°F (0°C to 40°C)
Storage temperature
–4°F to +140°F (–20°C to +60°C)
Dimensions
Approx. 6 5/8 x 1 11/16 x 3 inches (166 x 43 x 75 mm) (w/h/d) including projecting parts and controls
Mass
AC-V15/V16: Approx. 15 oz (420 g)
AC-V16A: Approx. 16 oz (450 g)

— Continued on next page —

8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

Model	CCD-TR514	CCD-TR614	CCD-TR714	CCD-TR814	CCD-TR78	CCD-TR88	CCD-TR98	CCD-TR99	CCD-TR590/590PK
Viewfinder	Electrical viewfinder Black and white	Electrical viewfinder Color	Electrical solra viewfinder color	Electrical viewfinder Black and white			Electrical solra viewfinder color		
Lens	12×,Combined power zoom lens,F1.8-2.7		12×(optical),24×(digital), Combined power zoom lens,F1.8-2.7						12×(optical), 48×(digital), Combined power zoom lens,F1.8-2.7
Focal distance	7/32-2 5/8 inches (5.4-64.8mm) When converted to a 35mm still camera 1 9/16-18 2/1 inches (39-468mm)			9/32-3 1/8 inches (6.5-78mm) When converted to a 35mm still camera 1 7/8-22 1/4 inches (47-564mm)	7/32-2 5/8 inches (5.4-64.8mm) When converted to a 35mm still camera 1 9/16-18 2/1 inches (39-468mm)	9/32-3 1/8 inches (6.5-78mm) When converted to a 35mm still camera 1 7/8-22 1/4 inches (47-564mm)			
Minimum illumination	0.81× at F 1.8			3.01× at F 1.8	0.81× at F 1.8	3.01× at F 1.8			
Illumination range	0.8 to 100,000 1×			3.0 to 100,000 1×	0.8 to 100,000 1×	3.0 to 100,000 1×			
Audio output	Phono jack,327mV, (at load impedance 47k) impedance less than 2.2k Monaural				Phono jack,327mV, (at load impedance 47k) impedance less than 2.2k Stereo				
Mic jack	Mini-jack,0.388mV,low impedance with 2.5 to 3V DC, output impedance 6.8k (3.5mm)				Stereo minijack,0.388mV,low impedance with 2.5 to 3V DC, output impedance 6.8k (3.5mm)				
Average power consumption	3.6W	3.7W	3.8W	4.0W	3.8W Light on : 6.8W	4.1W Light on : 7.1W	4.2W Light on : 7.2W	4.4W	
Dimensions	Approx.4 5/8×4 1/8×8 1/4 inches(115×103×207mm) (w/h/d)		Approx.4 5/8×4 1/8×7 7/8 inches (115×103×200mm) (w/h/d)	Approx.4 5/8×4 1/8×8 1/4 inches(115×103×207mm) (w/h/d)			Approx.4 5/8×4 1/8×7 7/8 inches(115×103×200mm) (w/h/d)		
Mass	Excluding the battery pack, lithium battery, cassette andli shoulder strap Approx.1 1b 9 oz (720g) NP-33,lithium battery Including the battery pack CR2025,cassette P6-120 and shoulder strap Approx.2 1b 1oz (940g)		Excluding the battery pack, thium battery, cassette and shoulder strap Approx.1 1b 9 oz (730g) Including the battery pack NP-33,lithium battery CR2025,cassette P6-120 and shoulder strap Approx.2 1b 1oz (950g)		Excluding the battery pack, lithium battery, cassette and shoulder strap Approx.1 1b 10 oz (740g) Including the battery pack NP-33,lithium battery CR2025,cassette P6-120 and shoulder strap Approx.2 1b 1oz (960g)				
Microphone	Electret condenser microphone Monaural type				Electret condenser microphone Stereo type				

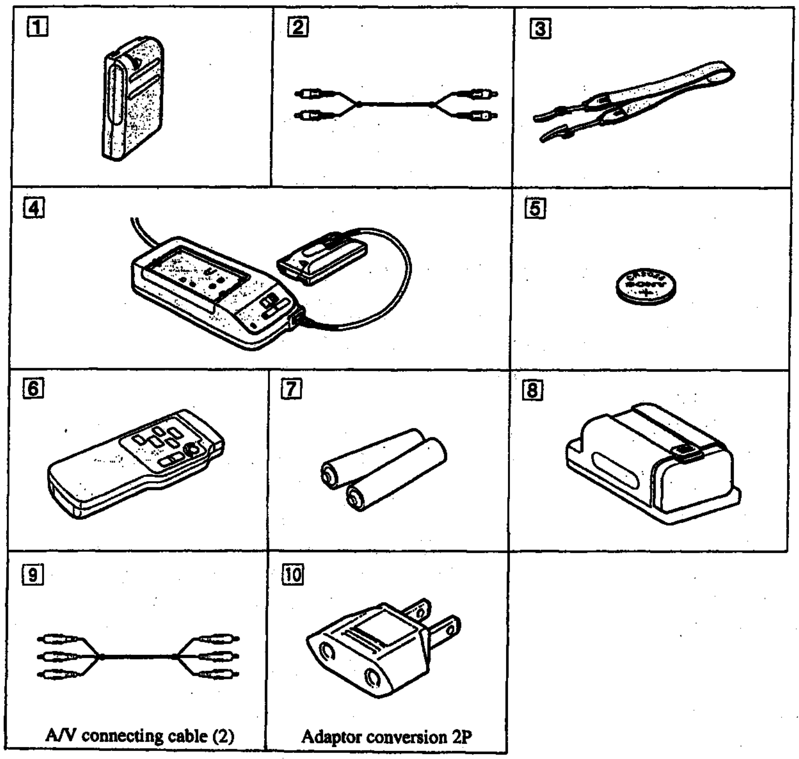
- **Table for difference of functions**

Model	TR514	TR614	TR714	TR814	TR78	TR88	TR98	TR99	TR590
Destination	US	US/CND	US	US	US	US	US	US	E/HK
Viewfinder	B/W	COLOR	SOLAR COLOR	B/W	B/W	B/W	SOLAR COLOR	SOLAR COLOR	SOLAR COLOR
Digital zoom	×	×	○ (24×)	○ (24×)	○ (24×)	○ (24×)	○ (24×)	○ (24×)	○ (48×)
Steady shot	×	×	×	○	×	○	○	○	○
Wide mode	×	×	×	×	×	×	×	×	○
Audio	MONO	MONO	MONO	MONO	STEREO	STEREO	STEREO	STEREO	STEREO
Video Light	×	×	×	×	○	○	○	×	×
LCD	×	×	×	×	×	×	×	○	○

abbreviation
CND: Canadian model
HK : Hong Kong model
B/W : Black and white

Checking Supplied Accessories

Check that the following accessories are supplied with your camcorder.



1. **NP-33 Battery Pack (1)**
2. **A/V connecting cable (1)** : MONO Model
3. **Shoulder strap (1)**
4. **AC-V15/V16/V16A AC power adaptor (1)**
5. **CR2025 Lithium Battery (1)**
   Already installed in the camcorder.
6. **Wireless Remote Commander (1)**
7. **Size AA (R6) battery for Remote Commander (2)**
8. **Battery case (1)** : TR78, TR88, TR98, TR99 Model
9. **A/V connecting cable (2)** : STEREO Model
10. **Adaptor conversion 2P** : Hong Kong Model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replace-ment.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

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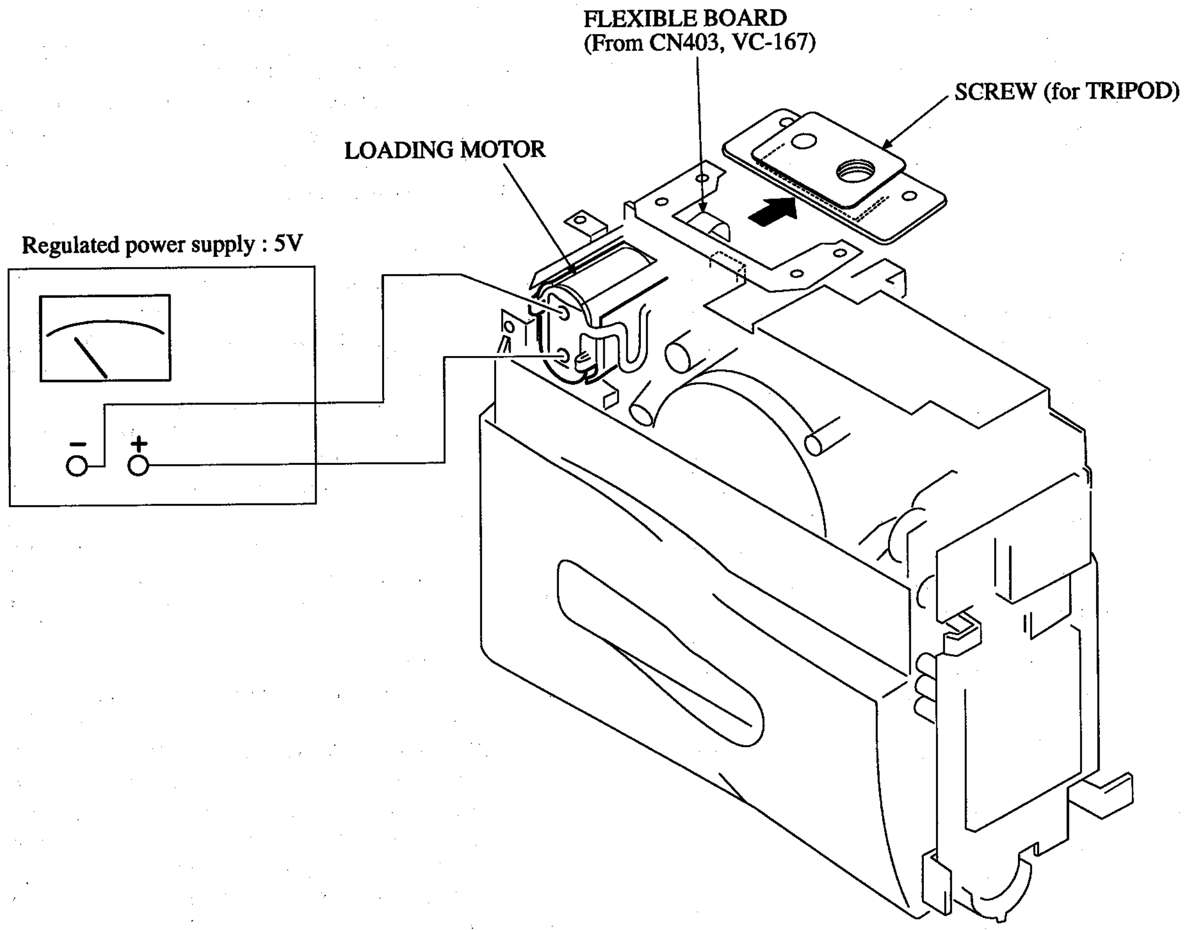
※ The color reproduction frame is shown after the page of ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS.

SERVICE NOTE

NOTE : To eject a cassette from the camcorder without turning on the main power, firstly remove the SCREW (for TRIPOD), then remove the FLEXIBLE BOARD as shown, and finally connect the regulated power supply ; +5V to the loading motor, this is to protect the main circuit from damage.


FLEXIBLE BOARD
(From CN403, VC-167)
SCREW (for TRIPOD)
LOADING MOTOR
Regulated power supply : 5V
–
+

CCD-TR78/TR88/TR98/TR99/TR514/TR590/TR590PK/TR614/TR714/TR814

SECTION 1
GENERAL

This section is extracted from instruction manual. (CCD-TR590)

Getting Started

Charging and Installing the Battery Pack

Preparativos

Carga y fijación de la batería

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.

Charging the Battery Pack

Charge the battery pack on a flat place without vibration.

(1) Connect the AC power adaptor to the wall outlet.

(2) Align the right side of the battery pack with the line on the AC power adaptor, then slide the battery pack in the direction of the arrow.

(3) Set the selector to CHARGE. The CHARGE lamp (orange) lights up. Charging begins.

When charging is completed, the CHARGE lamp goes out. Unplug the unit from the wall outlet, and then remove the battery pack and install it on the camcorder.

Antes de utilizar la videocámara, primero tendrá que cargar y colocar la batería. Para cargar la batería, utilice el adaptador de alimentación de CA suministrado.

Carga de la batería

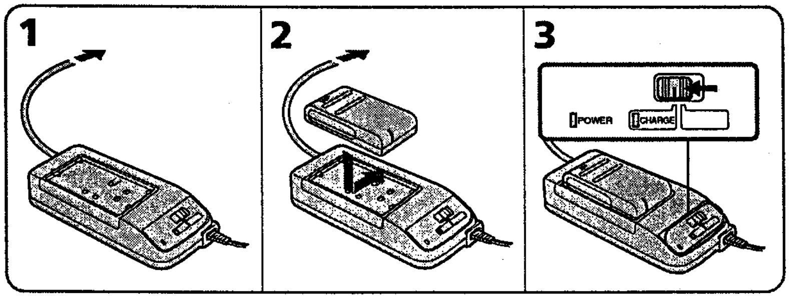
Cargue la batería en un lugar nivelado y exento de vibraciones.

(1) Conecte el adaptador de alimentación de CA a una toma de la red.

(2) Alinee el lado derecho de la batería con la línea del adaptador de alimentación de CA, y después deslice la batería en el sentido de la flecha.

(3) Ponga el selector en CHARGE. La lámpara CHARGE (anaranjada) se encenderá y se iniciará la carga.

Cuando finalice la carga, la lámpara CHARGE se apagará. Desconecte la unidad de la toma de la red, y después quite la batería y fíjela a la videocámara.



Charging Time

Battery pack	Charging time*
NP-33 (supplied)	60
NP-55H	85
NP-C65/67	105
NP-66	95
NP-77H/77HD	170
NP-98/98D	215

* Approximate minutes to charge an empty pack using the supplied AC power adaptor (Lower temperatures require a longer charging time.)

Tiempo de carga

Batería	Tiempo de carga*
NP-33 (suministrada)	60
NP-55H	85
NP-C65/67	105
NP-66	95
NP-77H/77HD	170
NP-98/98D	215

* Minutos aproximados para cargar una batería agotada utilizando el adaptador de alimentación de CA suministrado. (A bajas temperaturas, el tiempo de carga será más largo.)

Battery Life

Battery pack	Typical recording time**	Continuous recording time***
NP-33 (supplied)	40	75
NP-55H	50	90
NP-C65/67	70	130
NP-66	65	120
NP-77H/77HD	115	200
NP-98/98D	145	255

** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

*** Approximate continuous recording time indoors.

Duración de la batería

Batería	Tiempo de videofilmación típica**	Tiempo de videofilmación continua***
NP-33(suministrada)	40	75
NP-55H	50	90
NP-C65/67	70	130
NP-66	65	120
NP-77H/77HD	115	200
NP-98/98D	145	255

** Minutos aproximados cuando videofilme repitiendo el inicio/la parada de la grabación, el zoom y la conexión/desconexión de la alimentación. Es posible que la duración de la batería actual sea más corta.

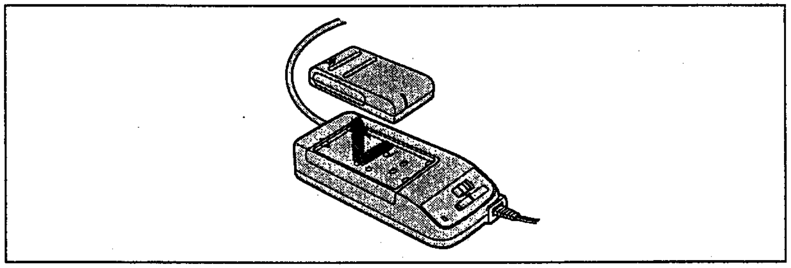
*** Tiempo aproximado de videofilmación continua en interiores.

To Remove the Battery Pack

Slide the battery pack in the direction of the arrow.

Para quitar la batería

Deslícela en el sentido de la flecha.



Notes on charging the battery pack

- The POWER lamp will remain lit for a while even if the battery pack is removed and the power cord is unplugged after charging the battery pack. This is normal.
- If the POWER lamp does not light, set the selector to VTR (DC OUT) and disconnect the power cord. After about one minute, reconnect the AC power cord and set the selector to CHARGE again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.

Notas sobre la carga de la batería

- Es normal que la lámpara POWER permanezca encendida durante un momento después de que haya quitado la batería y desconectado el cable de alimentación de CA cuando finalice la carga.
- Si la lámpara POWER no se enciende, ponga el selector en VTR (DC OUT) y desconecte el cable de alimentación de CA. Después de aproximadamente un minuto, vuelva a conectar el cable y a poner el selector en CHARGE.
- No podrá operar la videocámara empleando el adaptador de alimentación de CA mientras esté cargando la batería.

Charging and Installing the Battery Pack

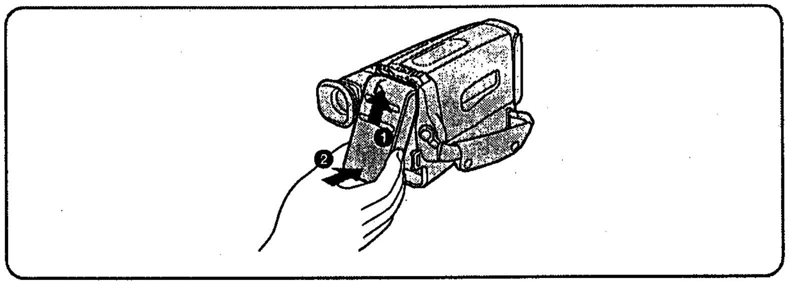
Carga y fijación de la batería

Installing the Battery Pack

(1) Insert the top of the battery pack into the top of the battery mounting surface.
(2) Push the battery pack so that it attaches firmly.

Fijación de la batería

(1) Inserte la cabeza de la batería en la parte superior de la superficie de montaje.
(2) Empuje la batería de forma que ésta quede firmemente fijada.

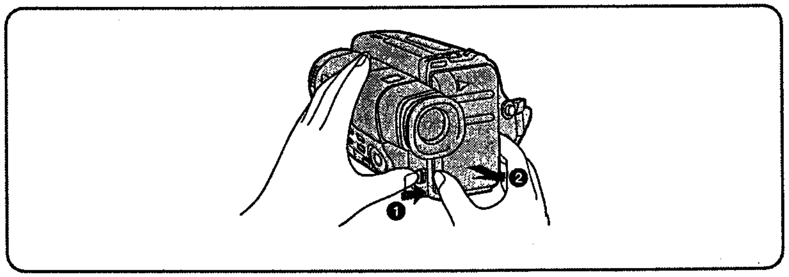


To Remove the Battery Pack

Slide BATT, and then pull the lower part of the battery pack.

Para quitar la batería

Deslice BATT, y después tire de la parte inferior de la batería.

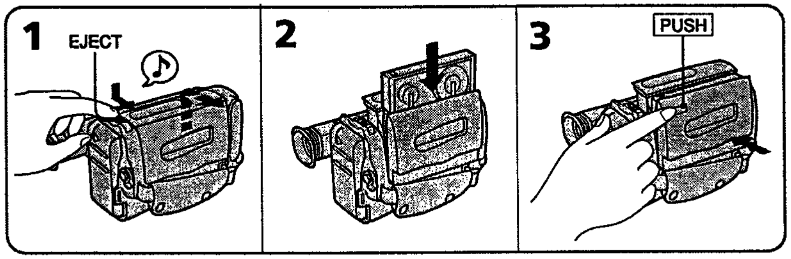


Inserting a Cassette

Inserción de un videocassette

Make sure that a power source is installed.
(1) While pressing the small blue button, slide EJECT in the direction of the arrow. The cassette compartment automatically opens.
(2) Insert a cassette (not supplied) with the window facing out.
(3) Press the PUSH mark on the cassette compartment to close it. The cassette compartment automatically closes.

Asegúrese de que haya una fuente de alimentación conectada a la videocámara.
(1) Manteniendo presionado el pequeño botón azul, deslice EJECT en el sentido de la flecha. El compartimiento del videocassette se abrirá automáticamente.
(2) Inserte un videocassette (no suministrado) con la ventanilla hacia afuera.
(3) Presione la marca PUSH del compartimiento del videocassette para cerrarlo. El compartimiento se cerrará automáticamente.



To Eject the Cassette

While pressing the small blue button, slide EJECT in the direction of the arrow.

To Prevent Accidental Erasure

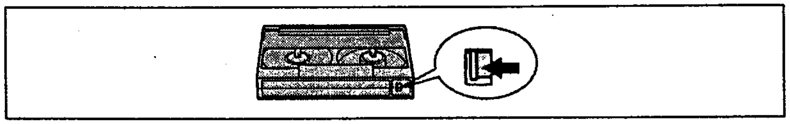
Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the 📼 and ⏏ indicators flash in the viewfinder, and you cannot record. To re-record on this tape, slide the tab back out covering the red mark.

Para expulsar el videocassette

Manteniendo presionado el pequeño botón azul, deslice EJECT en el sentido de la flecha.

Para prevenir el borrado accidental

Deslice la lengüeta del videocassette de forma que la marca roja quede al descubierto.
Si inserta un videocassette con la marca roja al descubierto y cierra el compartimiento del videocassette, sonará un pitido durante un momento. Si intenta grabar con la marca roja al descubierto, en el visor parpadearán los indicadores 📼 y ⏏, y no podrá grabar. Para volver a grabar en esta cinta, deslice la lengüeta de forma que se cubra la marca roja.



Camera Recording

Videofilmación

Make sure that a power source and a cassette is inserted.

When you use the camcorder for the first time, power on it and reset the date and time to your time (p. 36) before you start recording. When you reset the date and time, the date is automatically recorded for 10 seconds after you start recording (AUTO DATE feature). This feature works only once a day.

Before you record one-time events, you may want to make a trial recording to make sure that you are using the camcorder correctly.

(1) While pressing the small green button on the POWER switch, slide it to CAMERA.
(2) Slide START/STOP MODE to ⏏.
(3) Turn STANDBY up. The "STBY" indicator appears in the viewfinder.
(4) Press START/STOP (red button). The camcorder starts recording and the "STBY" indicator changes to the "REC" indicator.

You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE (p. 32) according to the length of your planned recording before you start.

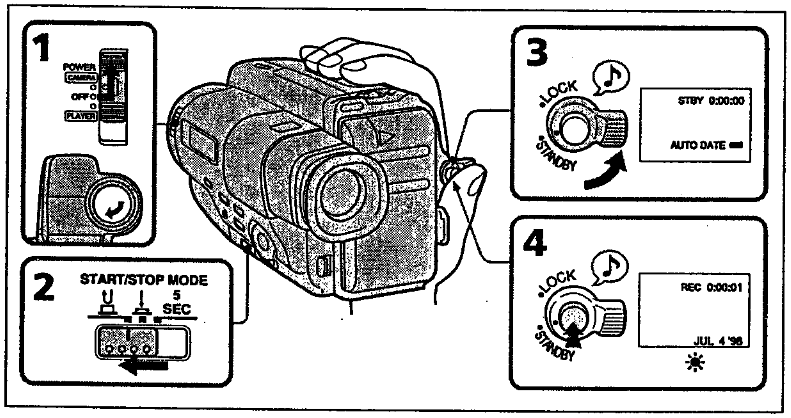
Asegúrese de que haya una fuente de alimentación conectada y un videocassette insertado.

Cuando utilice la videocámara por primera vez, conecte la alimentación y reajuste la fecha y la hora actual (pág. 36). Cuando las reajuste, la fecha se grabará automáticamente durante 10 segundos a partir del inicio de la videofilmación [función AUTO DATE (grabación automática de la fecha)]. Esta función sólo trabajará una vez al día.

Antes de realizar videofilmaciones irrepetibles, se recomienda realizar una filmación de prueba a fin de comprobar si la videocámara funciona correctamente.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta CAMERA.
(2) Deslice START/STOP MODE hasta ⏏.
(3) Gire STANDBY hacia arriba. En el visor aparecerá el indicador "STBY".
(4) Presione START/STOP (tecla roja). La videocámara comenzará a grabar y el indicador "STBY" cambiará a "REC".

Usted también podrá seleccionar el modo de grabación, modo SP (reproducción normal) o LP (reproducción larga). Ajuste REC MODE (pág. 32) de acuerdo con la duración de la filmación planeada antes de comenzar.



To Stop Recording Momentarily [a]

Press START/STOP again. The "REC" indicator in the viewfinder changes to the "STBY" indicator (**Standby mode**).

To Finish Recording [b]

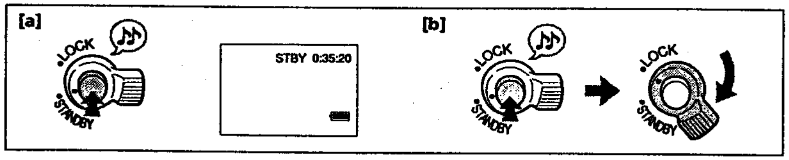
Press START/STOP. Turn STANDBY down, and set the POWER switch to OFF.
Then, eject the cassette (p. 9) and remove the battery pack (p. 8).

Para detener momentáneamente la grabación [a]

Presione otra vez START/STOP. El indicador "REC" cambiará al indicador "STBY" (**Modo de espera**).

Para finalizar la grabación [b]

Presione START/STOP, gire STANDBY hacia abajo y ponga el selector POWER en OFF.
Después extraiga el videocassette (pág. 9) y quite la batería (pág. 8).



Note on Standby mode
If you leave the camcorder for 5 minutes or more with a cassette inserted in Standby mode, the camcorder goes off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down once and turn it up again. To start recording, press START/STOP.

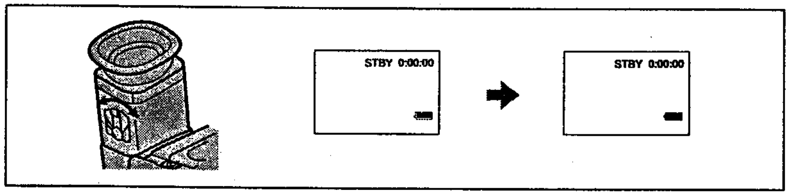
To Focus the Viewfinder Lens

If the viewfinder is not in focus at all or when you use the camcorder after someone else has used it, focus the viewfinder lens. Move the viewfinder lens adjustment lever so that the indicators in the viewfinder come into sharp focus.

Nota sobre el modo de espera
Si deja la videocámara en el modo de espera durante 5 minutos o más con el videocassette insertado, la videocámara se apagará automáticamente. Esto evitará que la batería y el videocassette se desgasten. Para restablecer el modo de espera, gire una vez STANDBY hacia abajo y después otra vez hacia arriba. Para comenzar a grabar, presione START/STOP.

Para enfocar la lente del visor

Cuando el visor no esté enfocado en absoluto, o cuando vaya a utilizar la videocámara después de haberla empleado otra persona, enfoque la lente del visor. Mueva la palanca de ajuste de la lente del visor de forma que los indicadores del visor queden nitidamente enfocados.



Camera Recording

Videofilmación

Note on the indicators in the viewfinder
The indicators appear in CAMERA mode only. They do not appear in PLAYER mode.

Recording with the START/STOP button depressed
You can also make recording while pressing down the START/STOP button. To make the START/STOP button work this way, slide the START/STOP MODE switch to ⊥. [c]

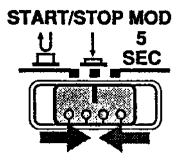
Shooting scenery in several short takes
You can automatically make recording for about 5 seconds with the 5 SEC (p. 28). To make the START/STOP button work this way, slide the START/STOP MODE switch to 5 SEC. [d]

Nota sobre los indicadores en el visor
Los indicadores aparecerán solamente en el modo CAMERA. Éstos no aparecerán en el modo PLAYER.

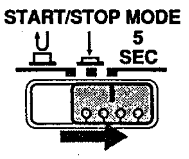
Grabación con la tecla START/STOP presionada
Usted también podrá grabar presionando la tecla START/STOP. Para hacer funcionar la tecla START/STOP de esta manera, deslice el selector START/STOP MODE hasta ⊥. [c]

Videofilmación de escenas en varias tomas cortas
Utilizando 5 SEC (pág. 28), podrá videofilmar automáticamente durante unos 5 segundos. Para que la tecla START/STOP funcione de esta manera, deslice el selector START/STOP MODE hasta 5 SEC. [d]

[c]



[d]



Note on recording
When you record from the beginning of the tape, run the tape for about 15 seconds before actual recording. This prevents the camcorder from missing any start-up scenes when you play back the tape.

Notes on recording mode
- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode.
  The playback quality in LP mode, however, will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.

Nota sobre la grabación
Cuando grabe desde el comienzo de la cinta, haga que ésta avance unos 15 segundos antes de comenzar la videofilmación actual. Esto evitará que se pierdan las escenas iniciales cuando se reproduzca la cinta.

Notas sobre el modo de grabación
- Esta videocámara graba y reproduce en los modos SP (reproducción esfándar) y LP (reproducción larga) (pág. 34). Sin embargo, la calidad de las imágenes reproducidas en el modo LP no será tan buena como en el modo SP.
- Cuando reproduzca una cinta grabada en esta videocámara en el modo LP en una videocámara de 8 mm de otro tipo o una videograbadora, es posible que la calidad de las imágenes no sea tan buena como en esta videocámara.

Notes on the tape counter
- The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Note on beep sound
As indicated with ♪ in the illustrations, a beep sounds when you turn the power on or when you start recording and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder (p. 63). Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, set BEEP to "OFF" (p. 32).

Note on the AUTO DATE feature
The clock is set at the factory to Tokyo time for the models sold in Japan, and to New York or Panama time for other models. You can reset the clock (p. 36).
The AUTO DATE feature shows the date automatically once a day. However, the date may automatically appear more than once a day when:
- you reset the date and time.
- you eject and insert the tape again.
- you stop recording within 10 seconds.

When moving from indoors to outdoors (or vice versa)
Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Notas sobre el contador de la cinta
- El contador de la cinta indicará el tiempo de grabación o de reproducción. Empléelo como una guía. Es posible que exista una diferencia de varios segundos del tiempo real. Para ajustar el contador a cero, presione COUNTER RESET.
- Si la cinta se ha grabado en los modos SP y LP mezclados, el contador de la cinta indicará un tiempo de videofilmación incorrecto. Cuando intente editar la cinta utilizando el contador de la cinta, grabe en el mismo modo (SP o LP).

Nota sobre el pitido
Como se indica con la marca ♪ en las ilustraciones, cuando conecte la alimentación o cuando comience la videofilmación, sonará un pitido, y cuando pare la videofilmación sonarán dos pitidos para confirmar la operación.
También sonarán varios pitidos como advertencia de una condición anormal de la videocámara (pág. 63). Tenga en cuenta que los pitidos no se grabarán en la cinta. Si no desea oir los pitidos, ponga BEEP en "OFF" (pág. 32).

Nota sobre la función AUTO DATE
El reloj está ajustado en fábrica a la hora de Tokio en los modelos vendidos en Japón y a la de Panamá o Nueva York en otros modelos. El reloj puede reajustarse (pág. 36).
La función AUTO DATE se activará una vez al día. Sin embargo, la fecha aparecerá automáticamente más de una vez al día cuando:
- reajuste la fecha y la hora.
- extraiga y vuelva a insertar el videocassette.
- pare la grabación antes de 10 segundos.

Cuando se mueva del interior al exterior (o viceversa)
Gire STANDBY hacia arriba y apunte con la videocámara hacia un objeto blanco durante unos 15 segundos de forma que el equilibrio del blanco se ajuste apropiadamente.

Using the Zoom Feature

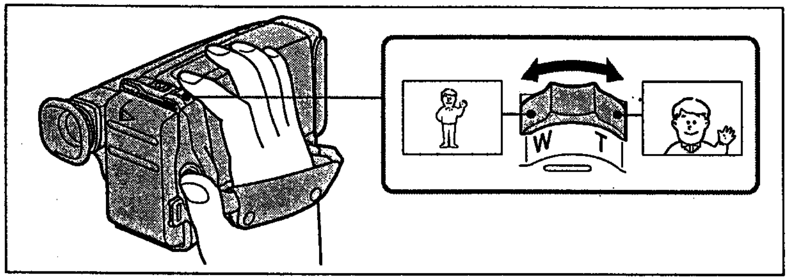
Zooming is a recording technique that lets you change the size of the subject in the scene. For more professional-looking recordings, use the zoom sparingly.

T side: for telephoto (subject appears closer)
W side: for wide-angle (subject appears farther away)

Utilización del zoom

El zoom es una técnica de videofilmación que le permite cambiar el tamaño del motivo en la escena. Para filmaciones de aspecto más profesional, utilice el zoom en forma limitada.

Lado T: para telefoto (el motivo se ve cercano)
Lado W: para gran angular (el motivo se ve lejano)



Zooming Speed

Turn the power zoom lever fully for a high-speed zoom. Turn it lightly for a relatively slow zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, turn the power zoom lever towards the W side until the focus is sharp.
You can shoot a subject that is at least about 80 cm away from the lens surface in the telephoto position, or about 1 cm in the wide-angle position.

Velocidad del zoom

Gire completamente la palanca del zoom motorizado para efectuar el zoom a gran velocidad y gírela un poco para hacerlo a una velocidad relativamente lenta.

Cuando videofilme un motivo empleando el acercamiento con el zoom

Si no puede enfocar nítidamente cuando videofilme con el zoom en el extremo del telefoto, gire la palanca del zoom motorizado hacia el lado W hasta enfocar nítidamente.
Usted podrá videofilmar un motivo que esté por lo menos a unos 80 cm de la superficie del objetivo en la posición de telefoto, y a aproximadamente 1 cm en la de gran angular.

Notes on Digital Zoom

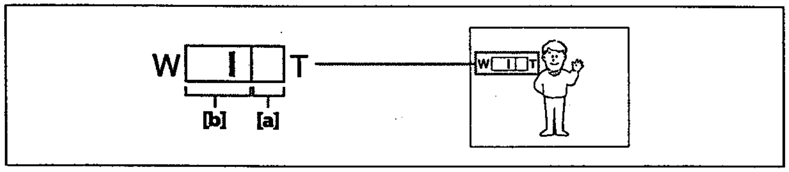
You can select 12 x or 48 x of zooming.

- More than 12 x zoom is performed digitally, and the picture quality deteriorates as you go toward the T side. If you do not want to use the digital zoom set the ZOOM function to x12 (p. 32).
- The right side **[a]** in the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you slide the ZOOM switch to x12, the **[a]** zone disappears.

Notas sobre el zoom digital

Usted podrá elegir entre el zoom de 12 y 48 aumentos.

- El zoom de más de 12 aumentos se realizará digitalmente, y la calidad de la imagen se deteriorá a medida que se acerque hacia el lado T. Si no desea utilizar el zoom digital, ajuste la función del zoom a x12 (pág. 32).
- La parte derecha **[a]** del indicador del zoom motorizado muestra la zona del zoom digital, y la parte izquierda **[b]** muestra la zona del zoom óptico. Si desliza el selector ZOOM hasta x12, la zona **[a]** desaparecerá.

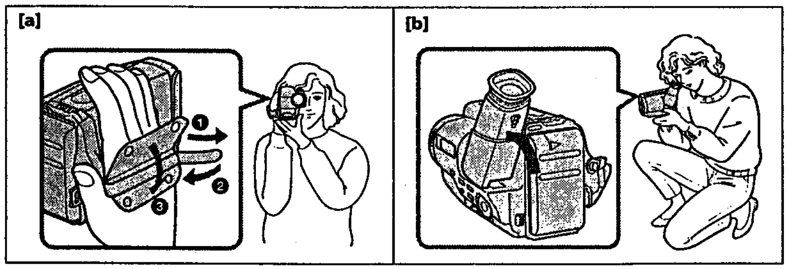


Hints for Better Shooting

For hand-held shots, you'll get better results holding the camcorder according to the following suggestions:

Consejos para videofilmar mejor

Para videofilmar con la videocámara en las manos, podrá obtener mejores imágenes sujetándola como se indica a continuación:



Hints for Better Shooting

- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb. **[a]** (p. 15)
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Do not cover the microphone with your fingers.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting recording angle. Turn the viewfinder up for recording from a low position. **[b]** (p. 15)

Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder.

When attaching a non-Sony tripod, make sure the tripod screw is shorter than 6.5 mm. Otherwise, the screw may damage the inner parts of the camcorder.

Cautions on the viewfinder

- Do not pick up the camcorder by the viewfinder. **[c]**
- Do not place the camcorder so as to point the viewfinder toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window. **[d]**

Consejos para videofilmar mejor

- Sujete la videocámara firmemente y asegúrela con la correa de la empuñadura de modo que pueda manipular fácilmente los controles con el pulgar. **[a]** (pág. 15)
- Coloque su codo derecho firmemente contra su costado.
- Coloque su mano izquierda debajo de la videocámara para sostenerla. No cubra el micrófono con sus dedos.
- Apoye el ocular del visor de la videocámara firmemente contra su ojo.
- Para determinar el plano horizontal, utilice el cuadro del visor como referencia.
- Para obtener un ángulo de videofilmación interesante, usted también podrá grabar desde una posición baja. Para grabar desde una posición baja, gire el visor hacia arriba. **[b]** (pág. 15)

Coloque la videocámara en una superficie plana o utilice un trípode

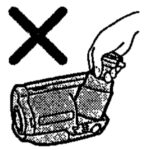
Pruebe colocando la videocámara sobre una mesa u otra superficie plana de altura adecuada. Si posee un trípode para cámara fotográfica, podrá emplearlo también con esta videocámara.

Cuando utilice un trípode que no sea Sony, asegúrese de que la longitud del tornillo del trípode sea inferior a 6,5mm. De lo contrario, es posible que el tornillo dañe las partes internas de la videocámara.

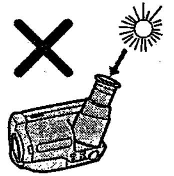
Precauciones sobre el visor

- No sujete la videocámara por el visor. **[c]**
- No deje la videocámara con el visor apuntando hacia el sol. Es posible que el interior del visor se deforme. Tenga cuidado al dejar la videocámara bajo el sol o cerca de una ventana. **[d]**

[c]



[d]



Note on the color viewfinder

The color viewfinder is made with high-precision technology. However, black points or bright points of light (red, blue, or green) may appear on the color viewfinder. These points are not recorded on the tape. This is not a malfunction. (Effective dots : more than 99.99%).

Nota sobre el visor en color

El visor en color ha sido fabricado con tecnología de gran precisión. Sin embargo, es posible que en el mismo aparezcan puntos negros o brillantes de luz (rojos, azules, o verdes). Estos puntos no se grabarán en la cinta. Esto no significa mal funcionamiento. (Puntos efectivos: más del 99,99%)

Checking the Recorded Picture

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder.

(1) While pressing the small green button on the POWER switch, slide it to CAMERA.
(2) Turn STANDBY up.
(3) Press EDITSEARCH. Press the – (⊖) side momentarily, the last few seconds of the recorded portion plays back **(Rec Review)**.

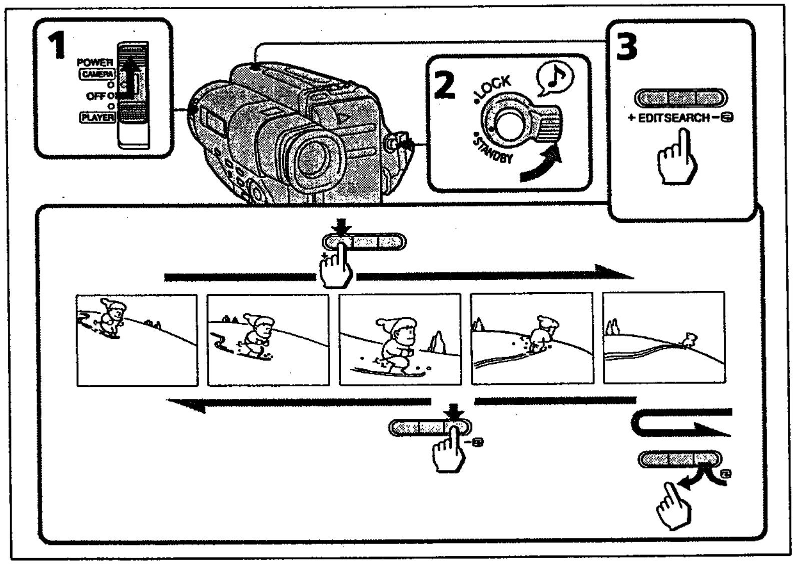
Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side **(Editsearch)**.

Verificación de las imágenes grabadas

Utilizando EDITSEARCH, usted podrá revisar la última escena grabada o comprobar la imagen grabada en el visor.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione EDITSEARCH. Presione momentáneamente el lado – (⊖). Se reproducirán los últimos segundos de la parte filmada **(Revisión de la grabación)**.

Mantenga presionado el lado – de EDITSEARCH hasta que la cinta retroceda hasta la escena deseada. La última parte filmada se reproducirá. Para avanzar la cinta, mantenga presionado el lado + **(Búsqueda para la edición)**.



To Begin Re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth

Para reanudar la grabación

Presione START/STOP. La grabación se iniciará desde el punto en el que soltó EDITSEARCH. Mientras no extraiga el videocassette, la transición entre la última escena grabada y la siguiente será uniforme.

Connections for Playback

Conexiones para la reproducción

You can use this camcorder as a VCR by connecting it to your TV for playback. It is recommended to use the house current as the power source (p. 21).

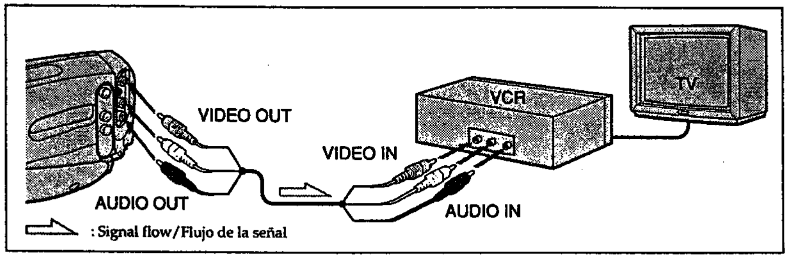
Para la reproducción, usted podrá utilizar esta videocámara para que funcione como videograbadora conectándola a su televisor. Se recomienda utilizar la corriente de la red como fuente de alimentación (pág. 21).

If a VCR is connected to a TV

Open the jack cover and connect the camcorder to LINE IN on the VCR by using the supplied A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector to VCR on the TV.

Cuando la videograbadora está conectada al televisor

Abra la cubierta de las tomas y conecte la videocámara a LINE IN de la videograbadora empleando el cable conector de audio/vídeo suministrado. Ponga el selector de entrada de la videograbadora en LINE, y el selector TV/VCR del televisor en VCR.

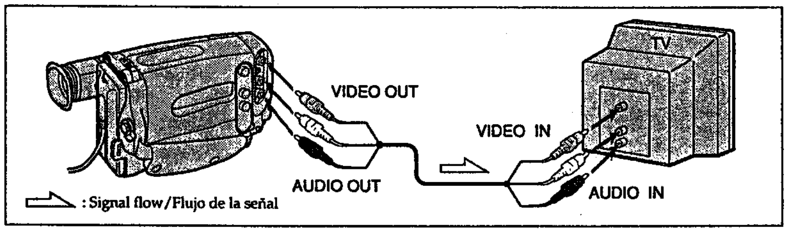


Connecting Directly to a TV

Open the jack cover and connect the camcorder to your TV by using the supplied A/V connecting cable. Set the TV/VCR selector to VCR on the TV.

Conexión directa a un televisor

Conecte la videocámara al televisor empleando el cable conector de audio/vídeo suministrado. Ponga el selector TV/VCR del televisor en VCR.



If your TV or VCR is a monaural type
Connect only the white plug for audio on both the camcorder and the TV or the VCR. With this connection, the sound is monaural.

Si su televisor o videograbadora es de tipo monoaural
Conecte solamente la clavija blanca para audio a la videocámara y al televisor o videograbadora. Con esta conexión, el sonido será monoaural.

To Connect to a VCR or a TV without Video/Audio input jacks

Use an RFU adaptor (not supplied).

Conexión a una videograbadora o un televisor sin tomas de entrada de video/audio

Utilice un adaptador de RFU (no suministrado).

Playing Back a Tape

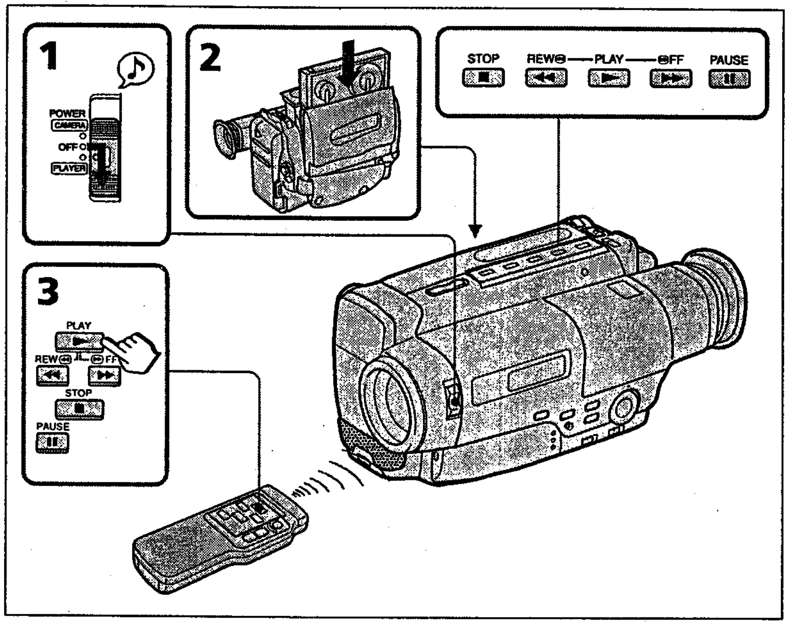
Reproducción de cintas

You can monitor the playback picture in the viewfinder. You can also monitor on the TV screen, after connecting the camcorder to the TV/VCR (p. 18).
You can control playback using the supplied Remote Commander.

(1) While pressing the small green button on the POWER switch, slide it to PLAYER.
The tape transport buttons light up.
(2) Insert the recorded tape with the window facing out.
(3) Press ►. Playback starts.

Usted podrá ver las imágenes reproducidas en el visor y también en la pantalla de televisor si conecta la videocámara a un televisor o una videograbadora (pág. 18). También podrá controlar la reproducción con el telemando suministrado.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, deslícelo hasta PLAYER.
Las teclas de transporte de la cinta se encenderán.
(2) Inserte una cinta grabada con la ventanilla hacia afuera.
(3) Presione ►. Se iniciará la reproducción.



To stop playback, press ■.
To rewind the tape, press ◄◄.
To fast-forward the tape, press ►►.

Para parar la reproducción, presione ■.
Para rebobinar la cinta, presione ◄◄.
Para hacer que la cinta avance rápidamente, presione ►►.

To Monitor the Sound while Viewing the Playback Picture in the Viewfinder

Connect headphones (not supplied) to the 🎧 jack. (p.55)

Various Playback Modes

To view a still picture (playback pause)
Press **II** during playback. To resume playback, press **II** or ►.

To locate a scene (Picture Search)
Keep pressing ◄◄ or ►► during playback. To resume normal playback, release the button.

To monitor the high-speed picture during fastforward or rewind (Skip Scan)
Keep pressing ◄◄ while rewinding or ►► while advancing the tape. To resume normal playback, press ►.

Notes on playback
- Streaks appear and the sound is muted in the various playback modes.
- When still picture mode lasts for 5 minutes or more, the camcorder automatically enters stop mode.

Para escuchar el sonido mientras esté viendo la imagen reproducida en el visor

Conecte los auriculares (no suministrados) a la toma 🎧 (pág. 55).

Diversos modos de reproducción

Para ver una imagen fija (reproducción en pausa)
Presione **II** durante la reproducción. Para reanudar la reproducción, presione **II** o ►.

Para localizar una escena (Búsqueda de imágenes)
Mantenga presionada ◄◄ o ►► durante la reproducción. Para reanudar la reproducción normal, suelte la tecla.

Para ver las imágenes a gran velocidad durante el avance rápido o el rebobinado (Exploración con salto)
Mantenga presionada ◄◄ durante el rebobinado o ►► durante el avance de la cinta. Para reanudar la reproducción normal, presione ►.

Notas sobre la reproducción
- En los diversos modos de reproducción aparecerán franjas y el sonido se silenciará.
- Cuando el modo de imagen fija dure 5 minutos o más, la videocámara pasará automáticamente al modo de parada.

Advanced Operations

Using Alternative Power Sources

You can choose any of the following power sources for your camcorder: battery pack (p .6), the house current, and 12/24 V car battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	House current	Supplied AC power adaptor
Outdoor	Battery pack	Battery pack NP-33 (supplied), NP-55H, NP-C65, NP-66, NP-67, NP-77H/77HD, NP-98/98D
In the car	12 V or 24 V car battery	DC pack DCP-77

This mark indicates that this product is a genuine accessory for Sony video product. When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Operaciones avanzadas

Utilización de fuentes de alimentación alternativas

Con esta videocámara podrá elegir cualquiera de las siguientes fuentes de alimentación: batería (pág. 6), corriente de la red, y batería de un automóvil de 12/24 V. Elija la fuente de alimentación apropiada de acuerdo con el lugar donde desee utilizar la videocámara.

Lugar	Fuente de alimentación	Accesorio necesario
Interiores	Corriente de la red	Adaptador de alimentación de CA suministrado
Exteriores	Batería	Batería NP-33 (suministrada), NP-55H, NP-C65, NP-66, NP-67, NP-77H/77HD, NP-98/98D
En un automóvl	Batería de automóvil de 12 V o 24 V	Paquete de CC DCP-77

Esta marca indica que este producto es un accesorio genuino para los productos de vídeo Sony. A la hora de adquirir los productos de vídeo Sony, recomendamos adquirir los accesorios con esta marca "GENUINE VIDEO ACCESSORIES".

Using Alternative Power Sources

Utilización de fuentes de alimentación alternativas

Using the House Current

To use the supplied AC power adaptor:

(1) Connect the AC power cord to a wall outlet. Insert the top of the connecting plate of the AC power adaptor into the top of the battery mounting surface. Push the connecting plate so that it attaches firmly.

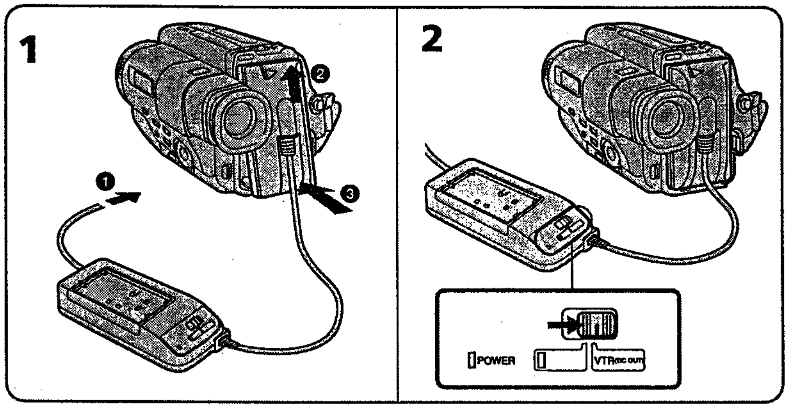
(2) Set the selector to VTR (DC OUT).

Utilización con la corriente de la red

Para utilizar el adaptador de alimentación de CA suministrado:

(1) Conecte el cable de alimentación de CA a una toma de la red. Inserte la parte superior de la placa conectora del adaptador de alimentación de CA en la parte superior de la superficie de montaje de la batería de la videocámara. Empuje la placa de forma que ésta quede firmemente fijada.

(2) Ponga el selector en VTR (DC OUT).



WARNING

AC power cord must only be changed at qualified service shop.

PRECAUTIONS

The set is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Notes on the POWER lamp

- The POWER lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the POWER lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord.

To remove the adaptor

The adaptor is removed in the same way as the battery pack (p. 8).

ADVERTENCIA

El cable de alimentación de CA deberá cambiarse solamente en una estación de servicio cualificada.

PRECAUCIÓN

Este aparato no se desconectará de la fuente de alimentación de CA (red) mientras esté enchufado en una toma de la misma, incluso aunque haya desconectado su alimentación.

Notas sobre la lámpara POWER

- Es normal que esta lámpara permanezca encendida durante un momento aunque desenchufe la unidad después de utilizarla.
- Cuando la lámpara POWER no se encienda, desconecte el cable de alimentación. Aproximadamente un minuto después, vuelva a conectar el cable de alimentación.

Para quitar el adaptador

Quítelo igual que la batería (pág. 8).

Using a Car Battery

Use the DCP-77 DC pack (not supplied). Connect the cord of the DC pack to the cigarette lighter socket of the car (12 V or 24 V). Connect the DC pack to the battery mounting surface of the camcorder.

To remove the DC pack

The DC pack is removed in the same way as the battery pack (p. 8).

Utilización con la batería de un automóvil

Emplee un paquete de CC DCP-77 (no suministrado). Conecte el cable del paquete de CC a la toma del encendedor de cigarrillos de un automóvil (12 o 24 V). Conecte el paquete de CC a la superficie de montaje de la batería de la videocámara.

Para quitar el paquete de CC

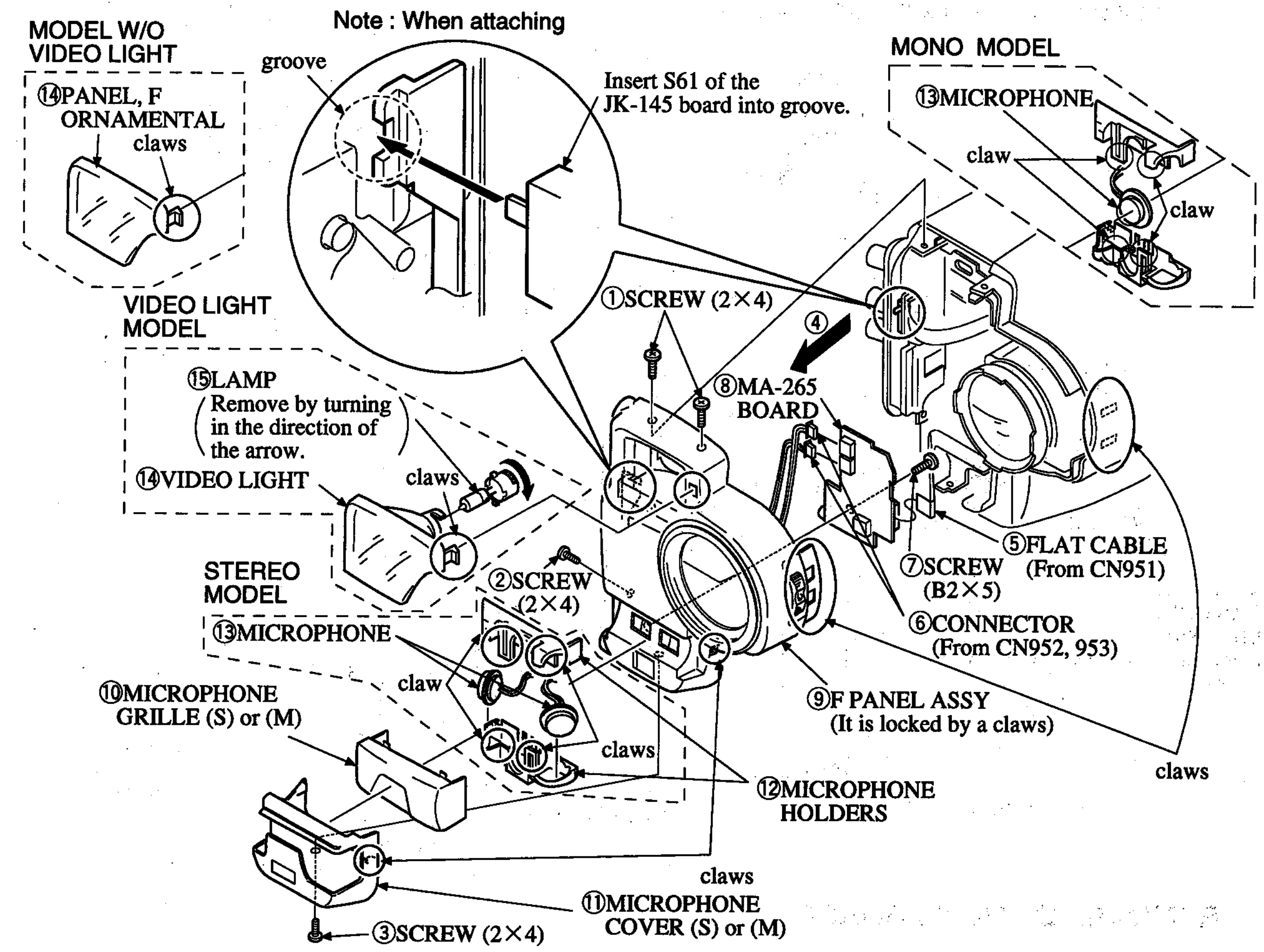
Quítelo igual que la batería (pág. 8).

SECTION 2

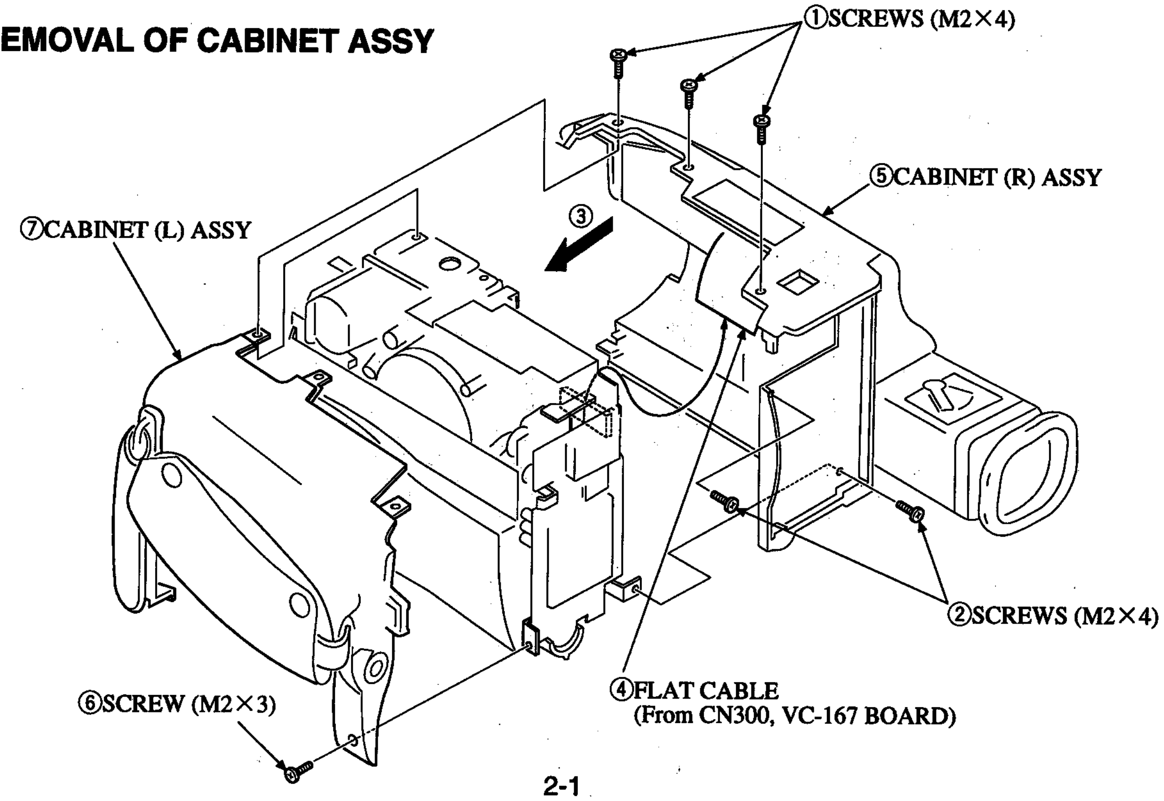
DISASSEMBLY

NOTE : Follow the disassembly procedure in the numerical order given.

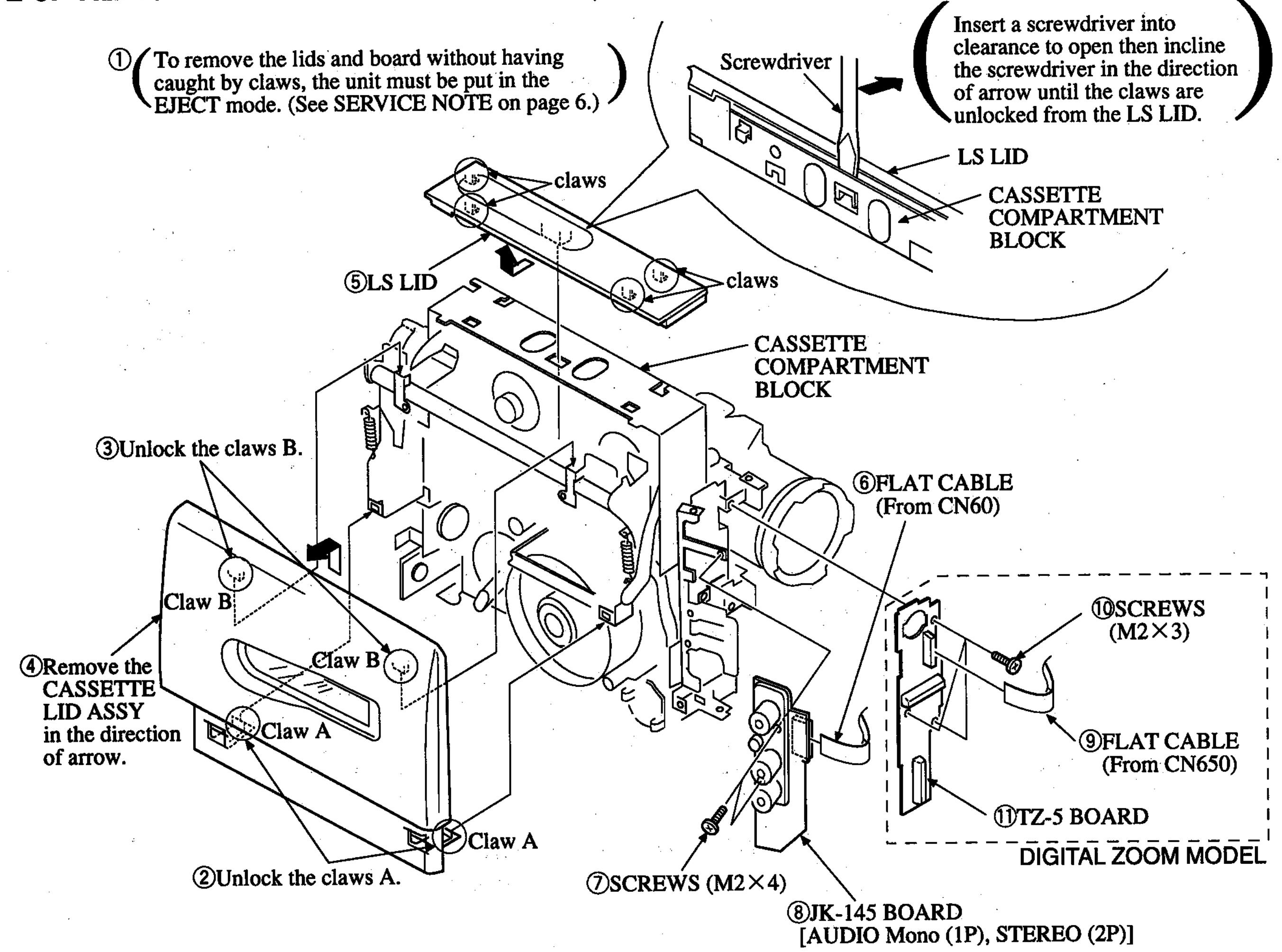
2-1. REMOVAL OF F PANEL ASSY, MA-265 BOARD and MICROPHONE


MODEL W/O VIDEO LIGHT
⑭PANEL, F ORNAMENTAL
claws
Note : When attaching
groove
Insert S61 of the JK-145 board into groove.
MONO MODEL
⑬MICROPHONE
claw
claw
VIDEO LIGHT MODEL
⑮LAMP (Remove by turning in the direction of the arrow.)
⑭VIDEO LIGHT
claws
①SCREW (2×4)
④
⑧MA-265 BOARD
⑤FLAT CABLE (From CN951)
⑦SCREW (B2×5)
⑥CONNECTOR (From CN952, 953)
STEREO MODEL
⑬MICROPHONE
②SCREW (2×4)
claw
⑩MICROPHONE GRILLE (S) or (M)
claws
⑨F PANEL ASSY (It is locked by a claws)
claws
⑫MICROPHONE HOLDERS
claws
⑪MICROPHONE COVER (S) or (M)
③SCREW (2×4)

2-2. REMOVAL OF CABINET ASSY

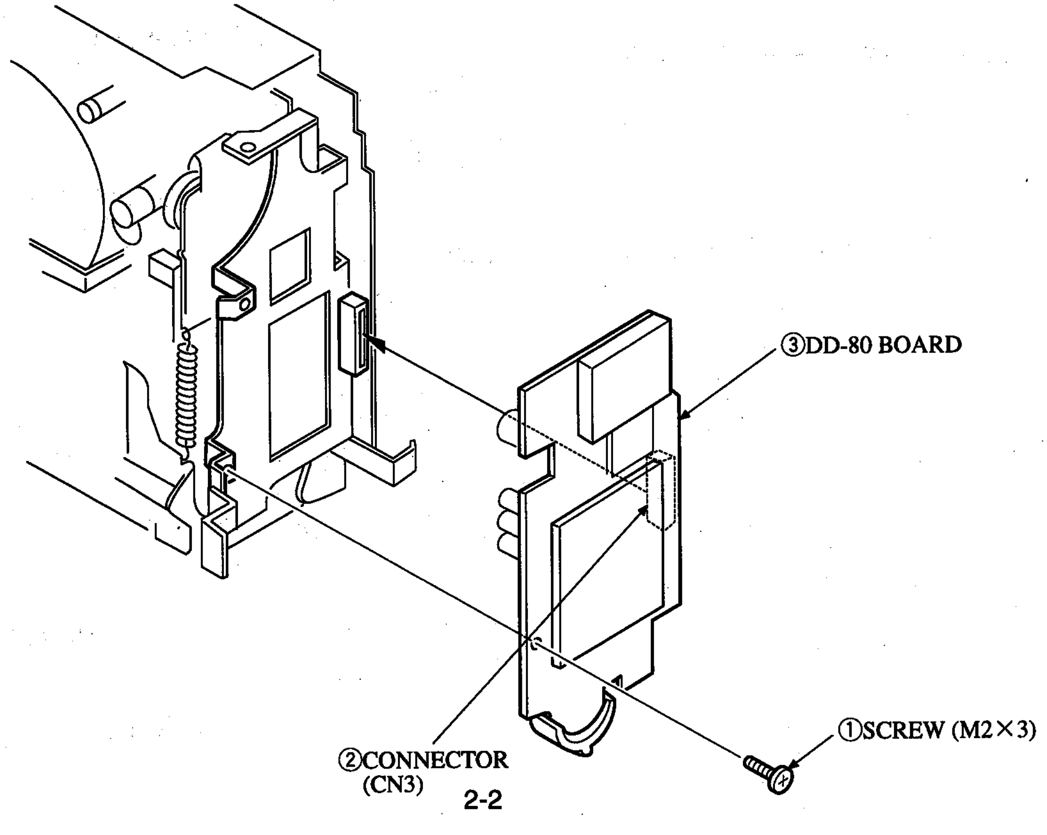

①SCREWS (M2×4)
⑤CABINET (R) ASSY
⑦CABINET (L) ASSY
③
②SCREWS (M2×4)
⑥SCREW (M2×3)
④FLAT CABLE (From CN300, VC-167 BOARD)

2-3. REMOVAL OF CASSETTE LID ASSY, LS LID, JK-145 and TZ-5 BOARD



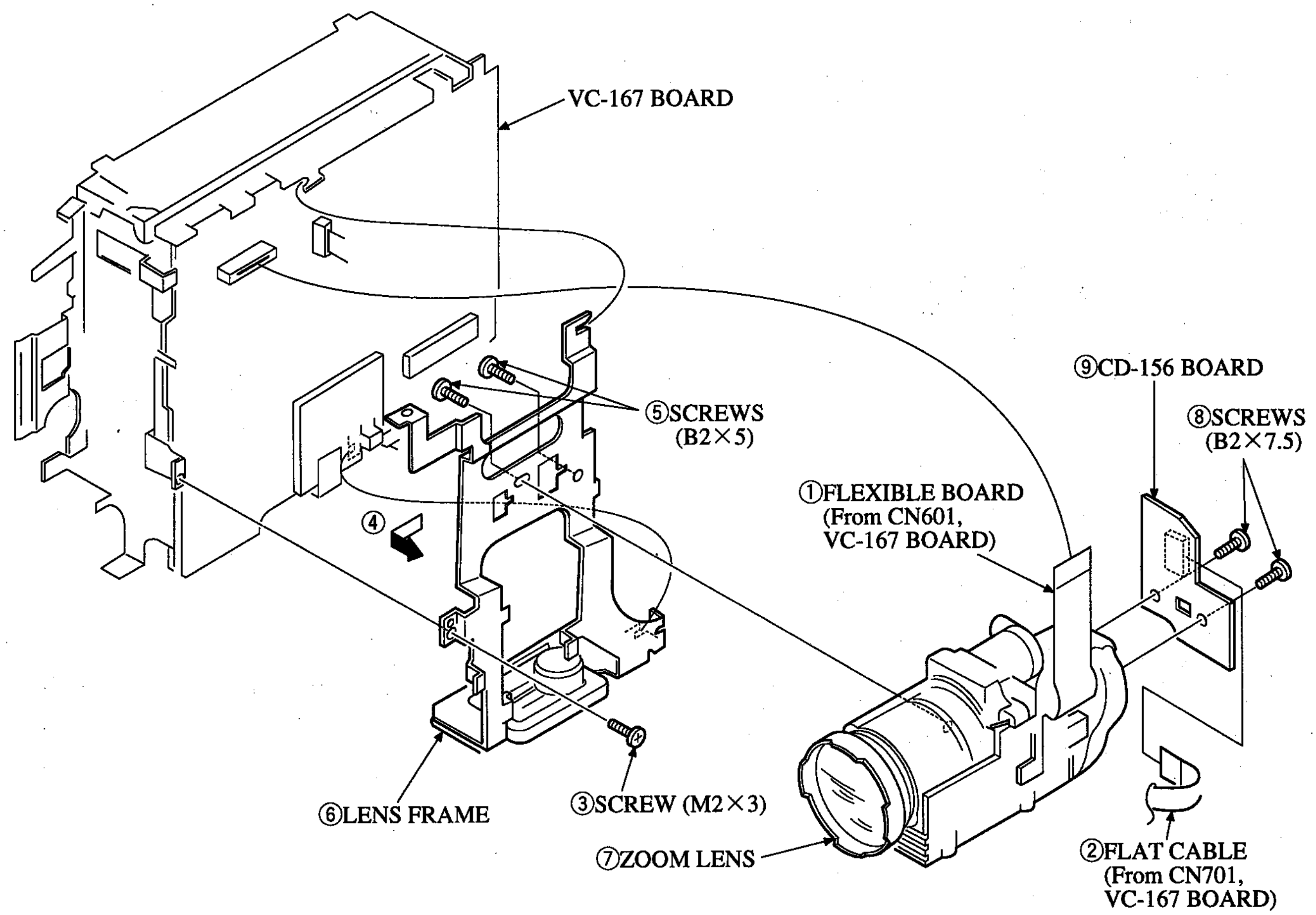
① (To remove the lids and board without having caught by claws, the unit must be put in the EJECT mode. (See SERVICE NOTE on page 6.))
Screwdriver
(Insert a screwdriver into clearance to open then incline the screwdriver in the direction of arrow until the claws are unlocked from the LS LID.)
LS LID
CASSETTE COMPARTMENT BLOCK
claws
⑤LS LID
claws
CASSETTE COMPARTMENT BLOCK
③Unlock the claws B.
⑥FLAT CABLE (From CN60)
Claw B
④Remove the CASSETTE LID ASSY in the direction of arrow.
Claw B
Claw A
⑩SCREWS (M2×3)
⑨FLAT CABLE (From CN650)
⑪TZ-5 BOARD
Claw A
DIGITAL ZOOM MODEL
②Unlock the claws A.
⑦SCREWS (M2×4)
⑧JK-145 BOARD [AUDIO Mono (1P), STEREO (2P)]

2-4. REMOVAL OF DD-80 BOARD



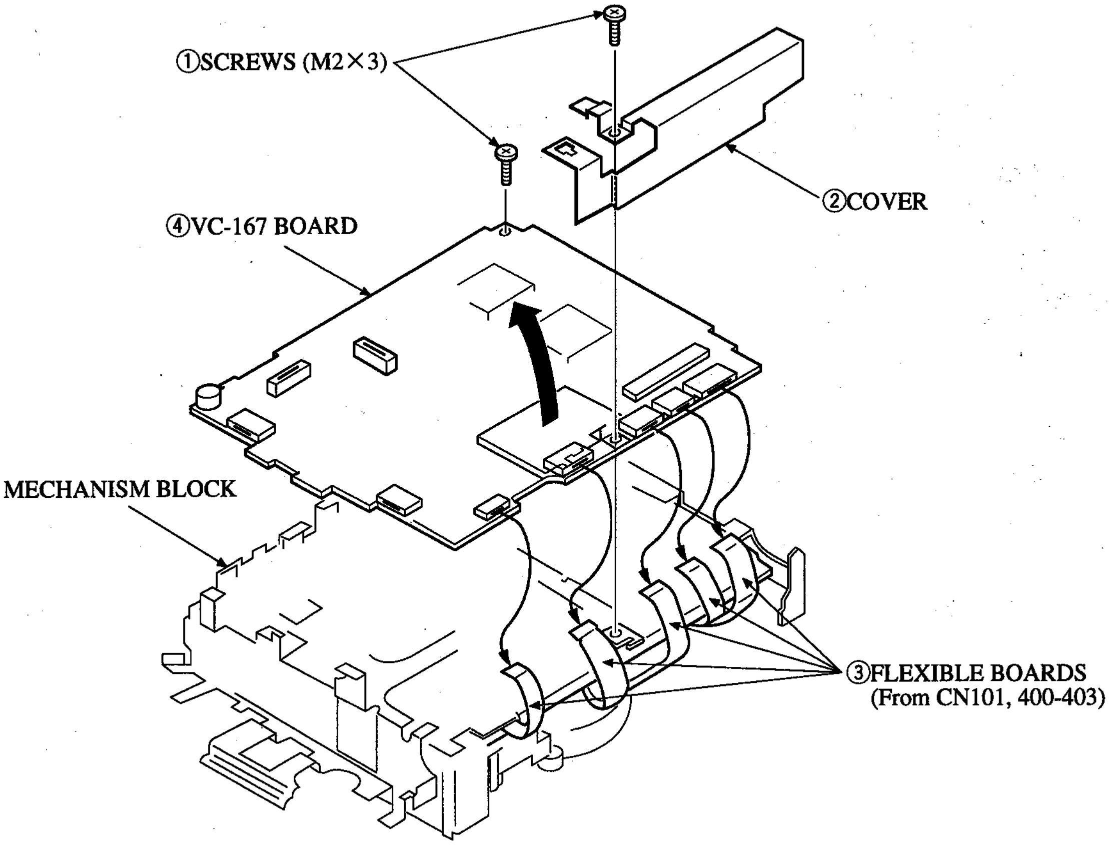
③DD-80 BOARD
①SCREW (M2×3)
②CONNECTOR (CN3)

2-5. REMOVAL OF ZOOM LENS and CD-156 BOARD



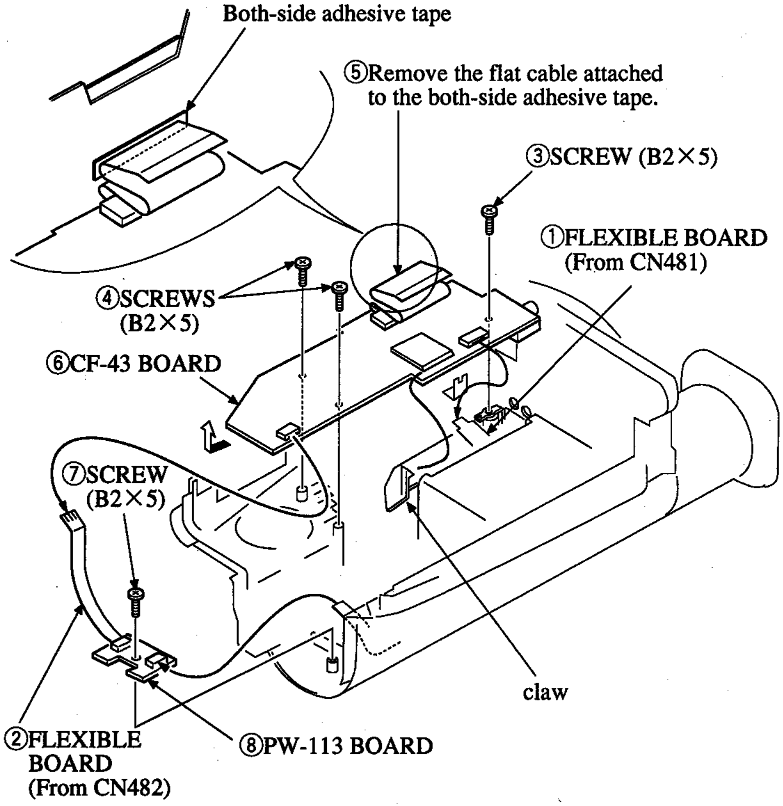
VC-167 BOARD
⑨CD-156 BOARD
⑤SCREWS
(B2×5)
⑧SCREWS
(B2×7.5)
①FLEXIBLE BOARD
(From CN601,
VC-167 BOARD)
④
⑥LENS FRAME
③SCREW (M2×3)
⑦ZOOM LENS
②FLAT CABLE
(From CN701,
VC-167 BOARD)

2-6. REMOVAL OF VC-167 BOARD



①SCREWS (M2×3)
②COVER
④VC-167 BOARD
MECHANISM BLOCK
③FLEXIBLE BOARDS
(From CN101, 400-403)

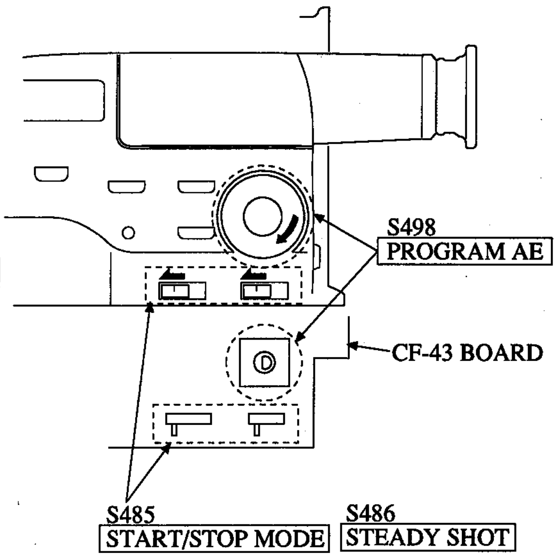
2-7. REMOVAL OF CF-43 BOARD and PW-113 BOARD



⑤Remove the flat cable attached to the both-side adhesive tape.

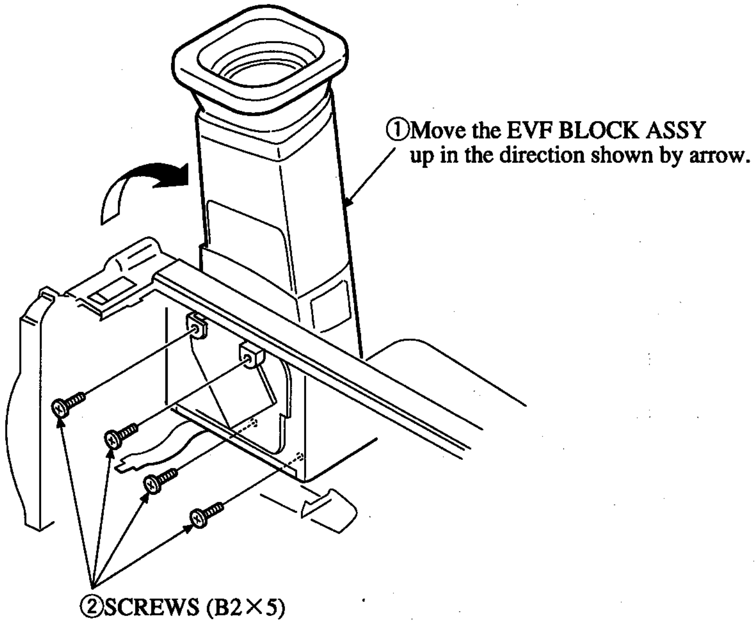
Both-side adhesive tape
③SCREW (B2×5)
①FLEXIBLE BOARD
(From CN481)
④SCREWS
(B2×5)
⑥CF-43 BOARD
⑦SCREW
(B2×5)
claw
②FLEXIBLE
BOARD
(From CN482)
⑧PW-113 BOARD

Note) When attaching the CF-43 board, Set the switches in the positions as showen.



S498
PROGRAM AE
CF-43 BOARD
S485
START/STOP MODE
S486
STEADY SHOT

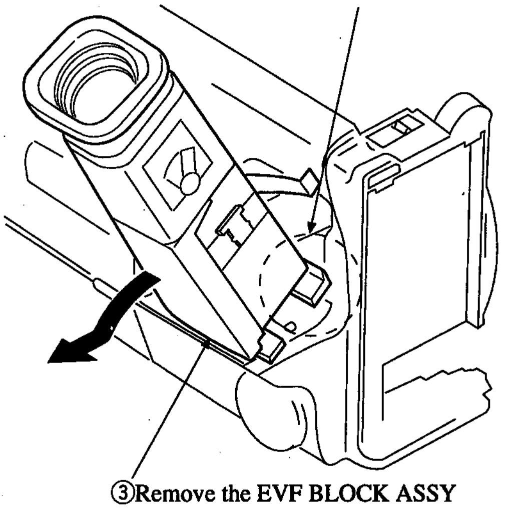
2-8. REMOVAL OF EVF BLOCK ASSY



①Move the EVF BLOCK ASSY up in the direction shown by arrow.

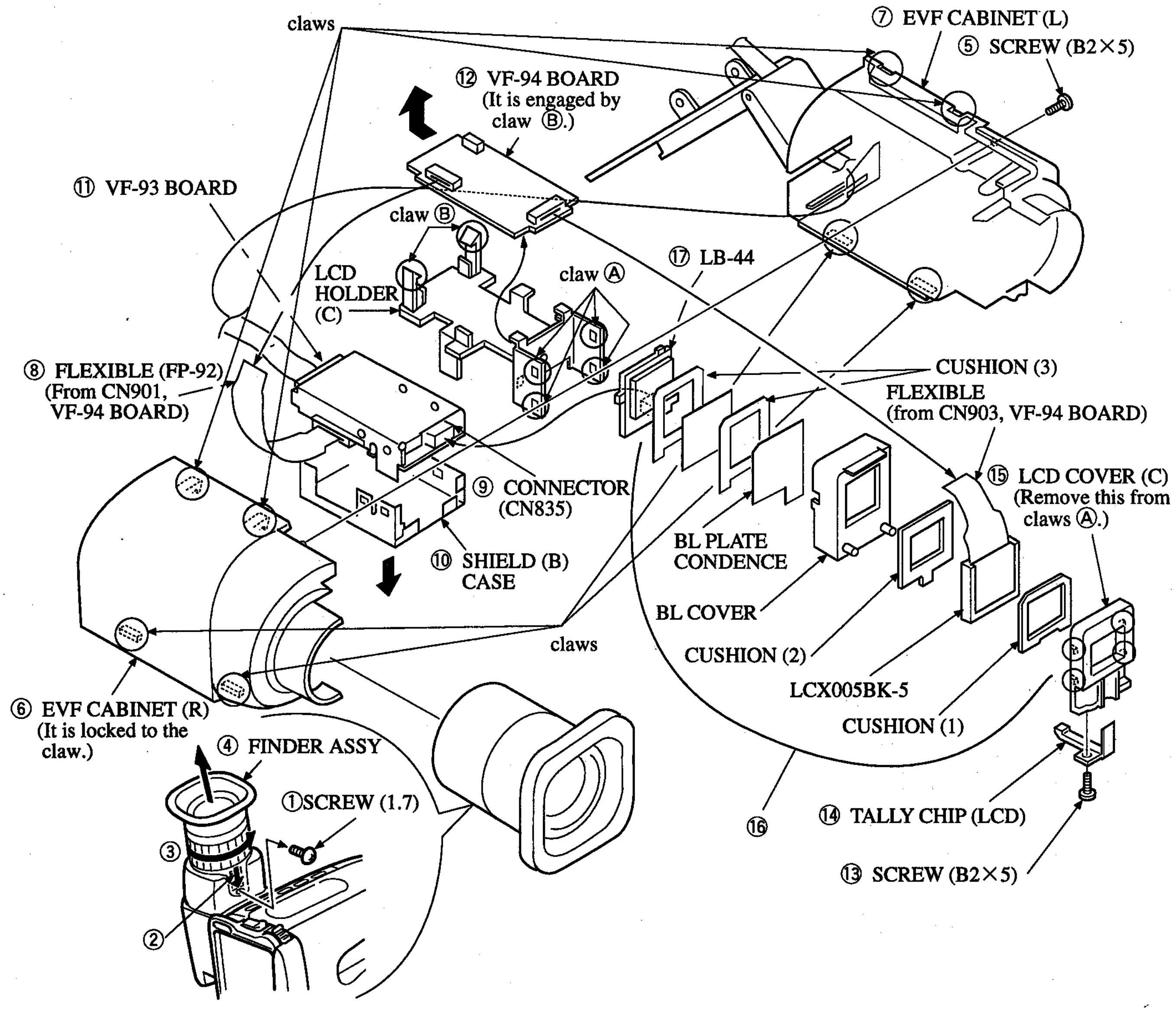
②SCREWS (B2×5)

When disassembling, be careful that the portion is hooked with the CABINET (R).



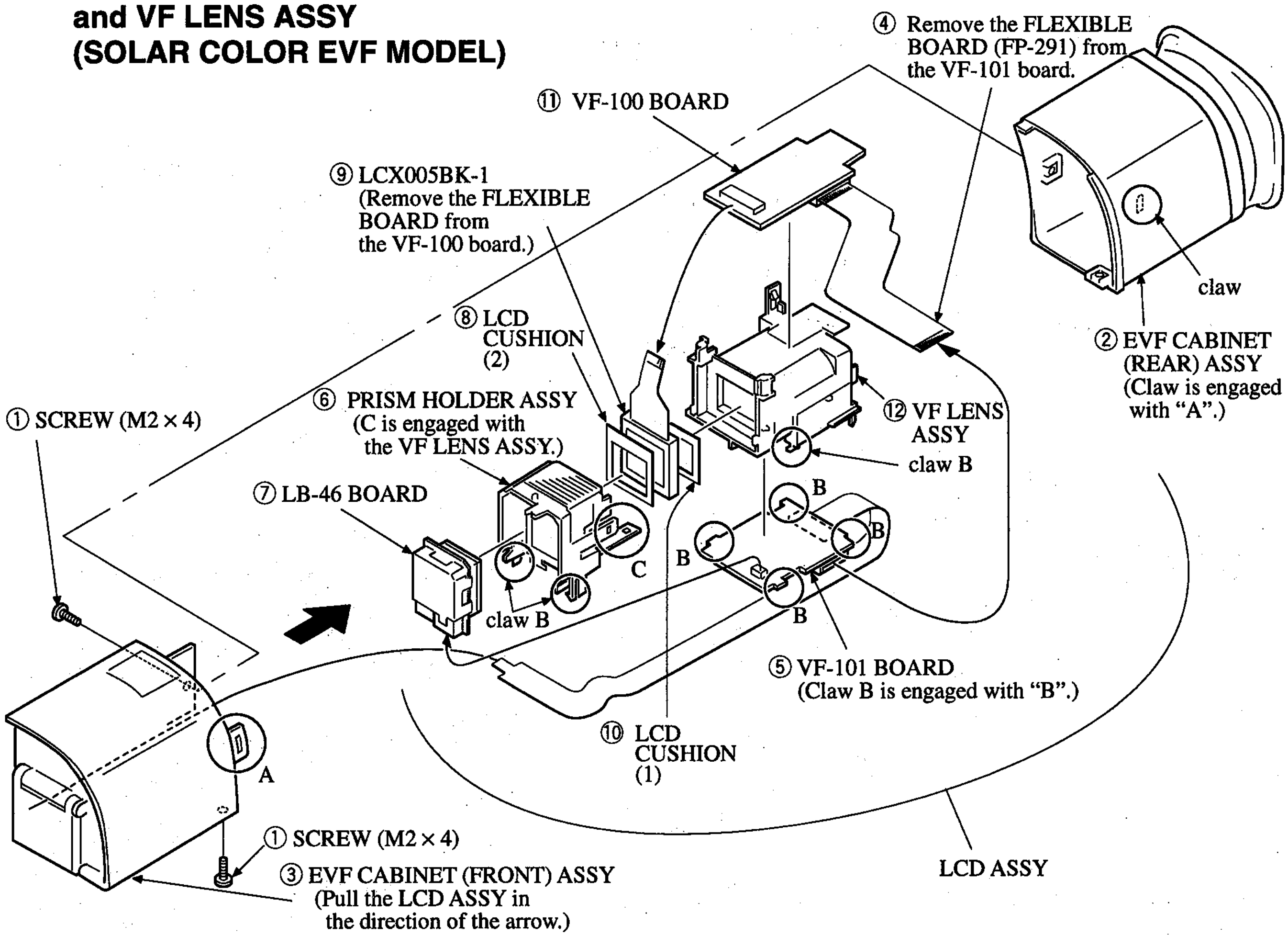
③Remove the EVF BLOCK ASSY by inclining the EVF BLOCK ASSY in the direction shown by arrow.

2-9. REMOVAL OF VF-93, VF-94 and LB-44 BOARD (COLOR EVF MODEL)

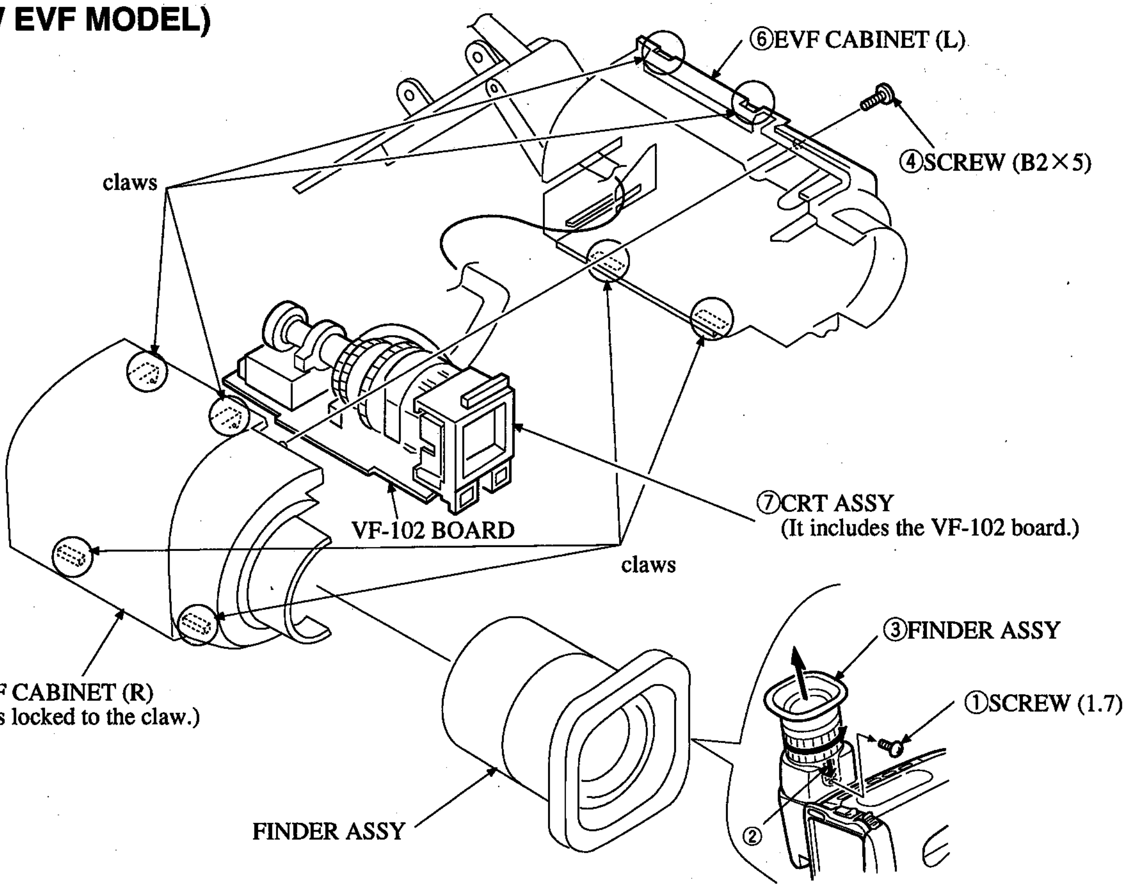


claws
⑦ EVF CABINET (L)
⑤ SCREW (B2×5)
⑫ VF-94 BOARD
(It is engaged by claw Ⓑ.)
⑪ VF-93 BOARD
claw Ⓑ
⑰ LB-44
LCD HOLDER (C)
claw Ⓐ
⑧ FLEXIBLE (FP-92)
(From CN901, VF-94 BOARD)
CUSHION (3)
FLEXIBLE
(from CN903, VF-94 BOARD)
⑨ CONNECTOR (CN835)
⑮ LCD COVER (C)
(Remove this from claws Ⓐ.)
⑩ SHIELD (B) CASE
BL PLATE CONDENCE
BL COVER
claws
CUSHION (2)
LCX005BK-5
⑥ EVF CABINET (R)
(It is locked to the claw.)
CUSHION (1)
④ FINDER ASSY
①SCREW (1.7)
③
②
⑯
⑭ TALLY CHIP (LCD)
⑬ SCREW (B2×5)

2-10. REMOVAL OF VF-101, PRISM HOLDER ASSY, LB-46, VF-100 BOARD and VF LENS ASSY (SOLAR COLOR EVF MODEL)

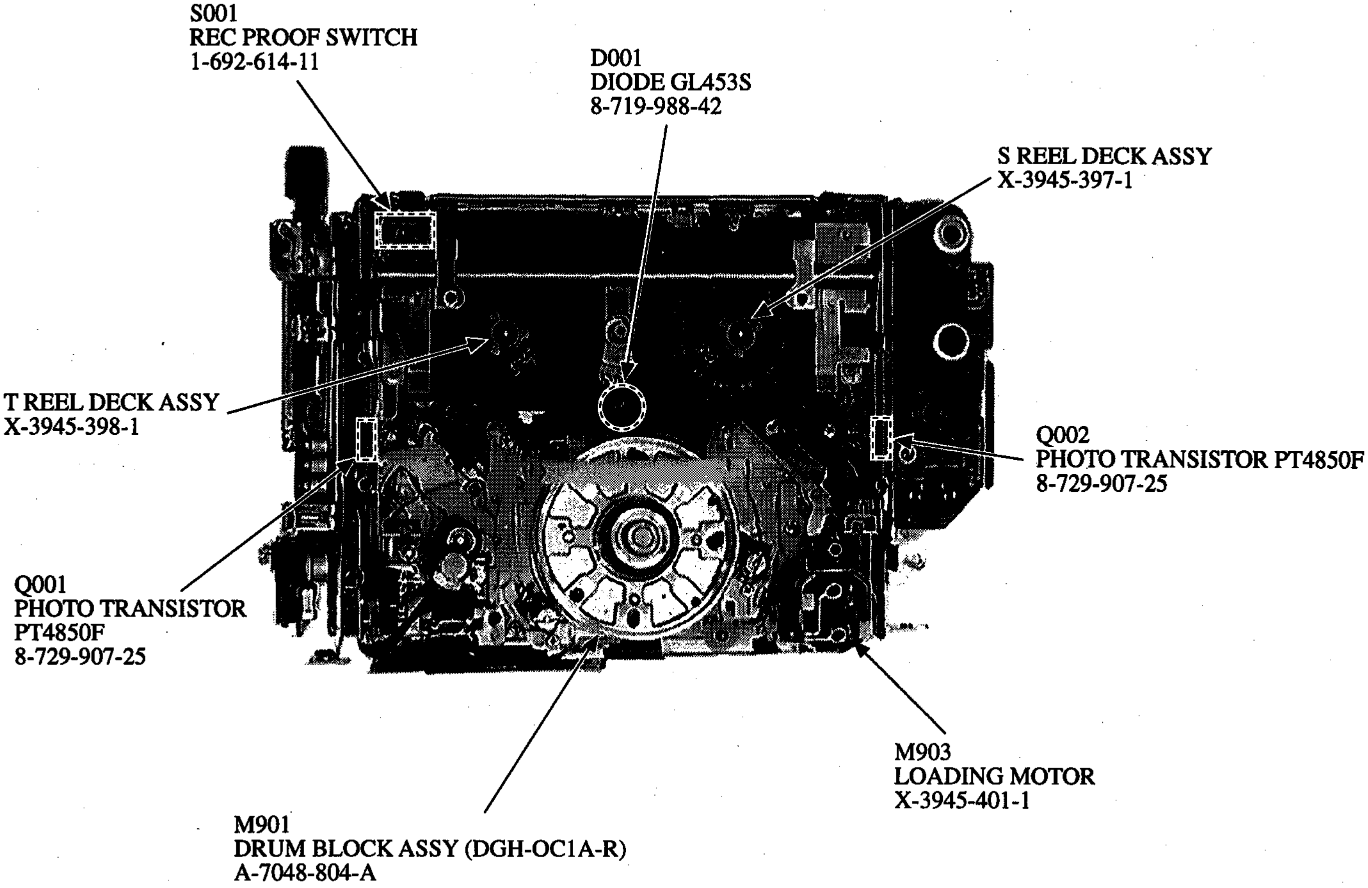

④ Remove the FLEXIBLE BOARD (FP-291) from the VF-101 board.
⑪ VF-100 BOARD
⑨ LCX005BK-1 (Remove the FLEXIBLE BOARD from the VF-100 board.)
claw
② EVF CABINET (REAR) ASSY (Claw is engaged with "A".)
⑧ LCD CUSHION (2)
⑥ PRISM HOLDER ASSY (C is engaged with the VF LENS ASSY.)
① SCREW (M2 × 4)
⑫ VF LENS ASSY
claw B
⑦ LB-46 BOARD
B
B
C
B
claw B
B
⑤ VF-101 BOARD (Claw B is engaged with "B".)
⑩ LCD CUSHION (1)
A
① SCREW (M2 × 4)
③ EVF CABINET (FRONT) ASSY (Pull the LCD ASSY in the direction of the arrow.)
LCD ASSY

2-11. REMOVAL OF CRT ASSY and VF-102 BOARD (B/W EVF MODEL)

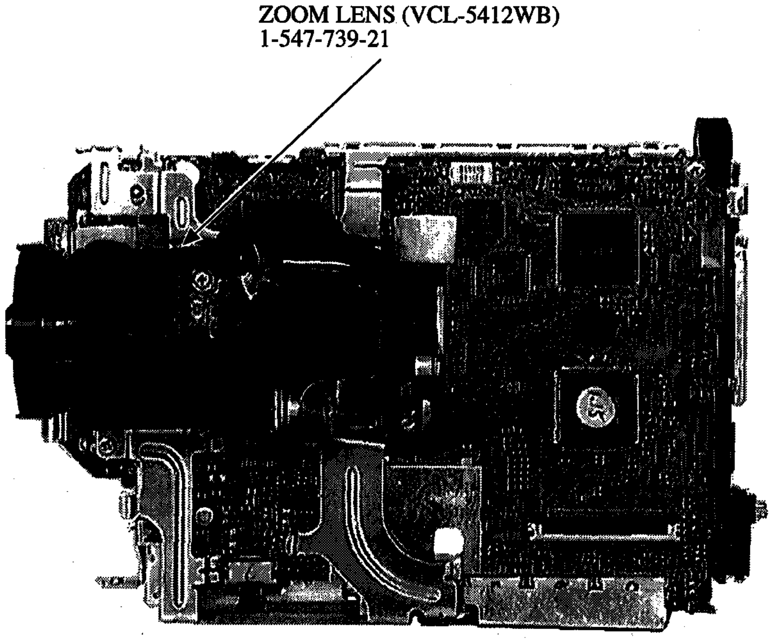

⑥EVF CABINET (L)
④SCREW (B2×5)
claws
VF-102 BOARD
⑦CRT ASSY (It includes the VF-102 board.)
claws
③FINDER ASSY
①SCREW (1.7)
⑤EVF CABINET (R) (It is locked to the claw.)
②
FINDER ASSY

2-12. INTERNAL VIEWS

—LEFT SIDE—

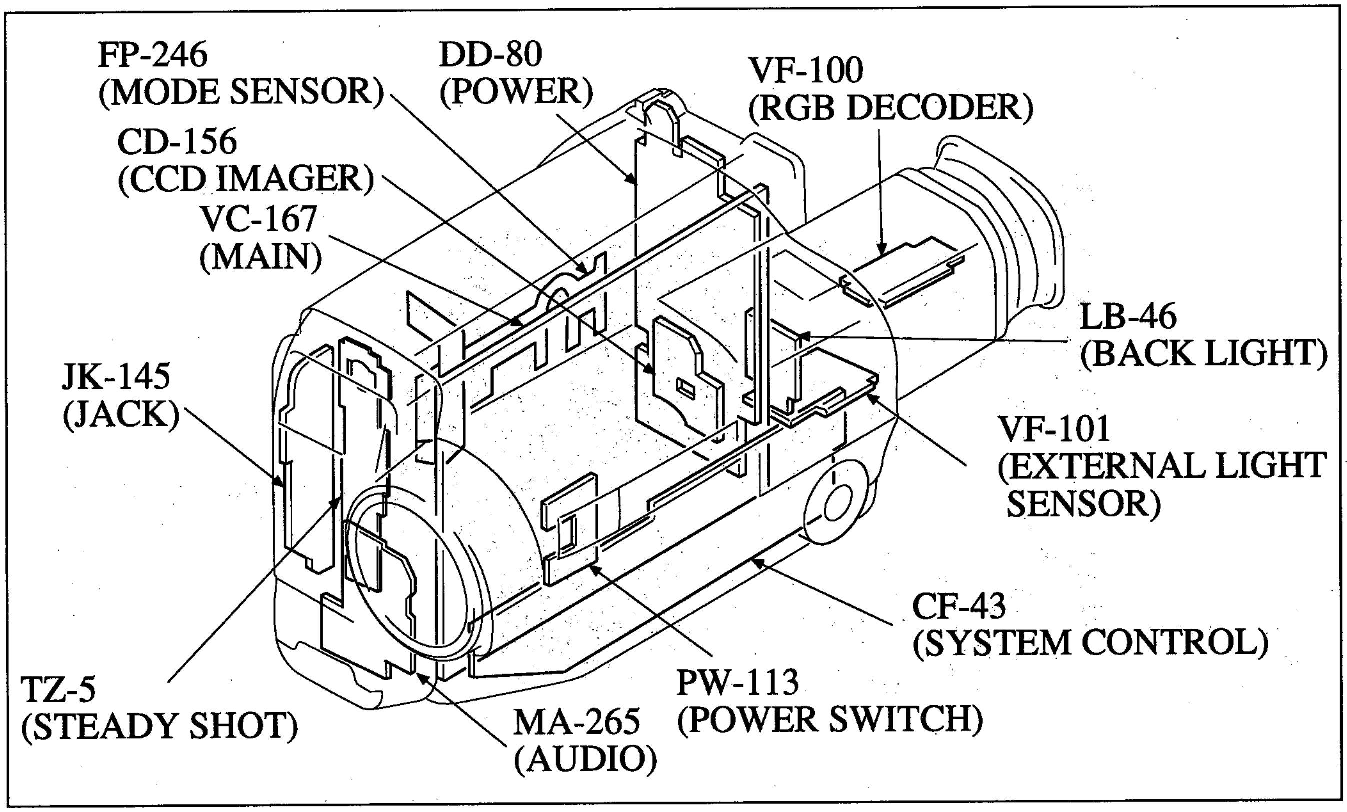

S001
REC PROOF SWITCH
1-692-614-11
D001
DIODE GL453S
8-719-988-42
S REEL DECK ASSY
X-3945-397-1
T REEL DECK ASSY
X-3945-398-1
Q002
PHOTO TRANSISTOR PT4850F
8-729-907-25
Q001
PHOTO TRANSISTOR
PT4850F
8-729-907-25
M903
LOADING MOTOR
X-3945-401-1
M901
DRUM BLOCK ASSY (DGH-OC1A-R)
A-7048-804-A

—RIGHT SIDE—

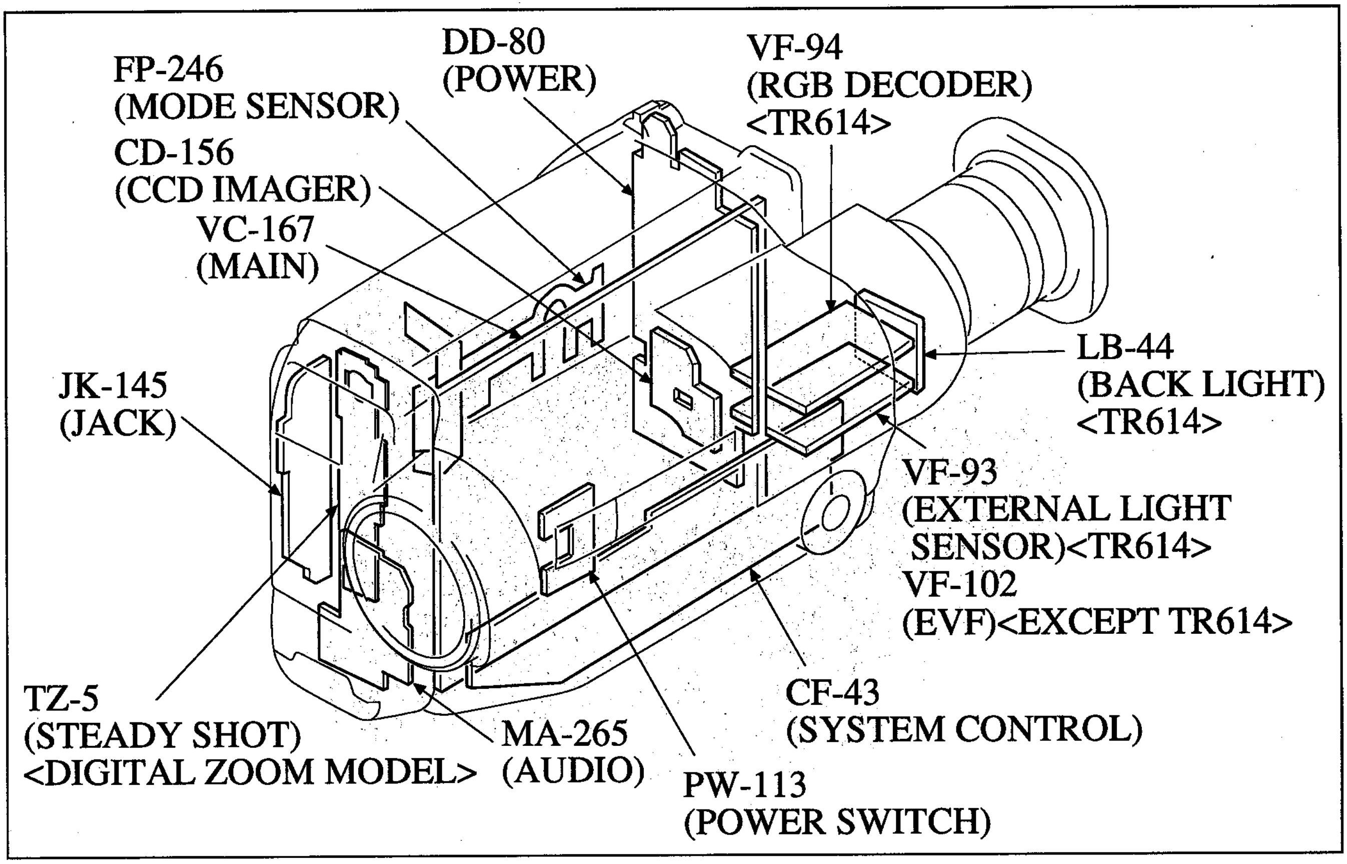

ZOOM LENS (VCL-5412WB)
1-547-739-21

2-13. CIRCUIT BOARDS LOCATION

SOLAR COLOR EVF MODEL


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
PW-113
(POWER SWITCH)
MA-265
(AUDIO)

COLOR and B/W EVF MODEL


DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
FP-246
(MODE SENSOR)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
<DIGITAL ZOOM MODEL>
MA-265
(AUDIO)
PW-113
(POWER SWITCH)

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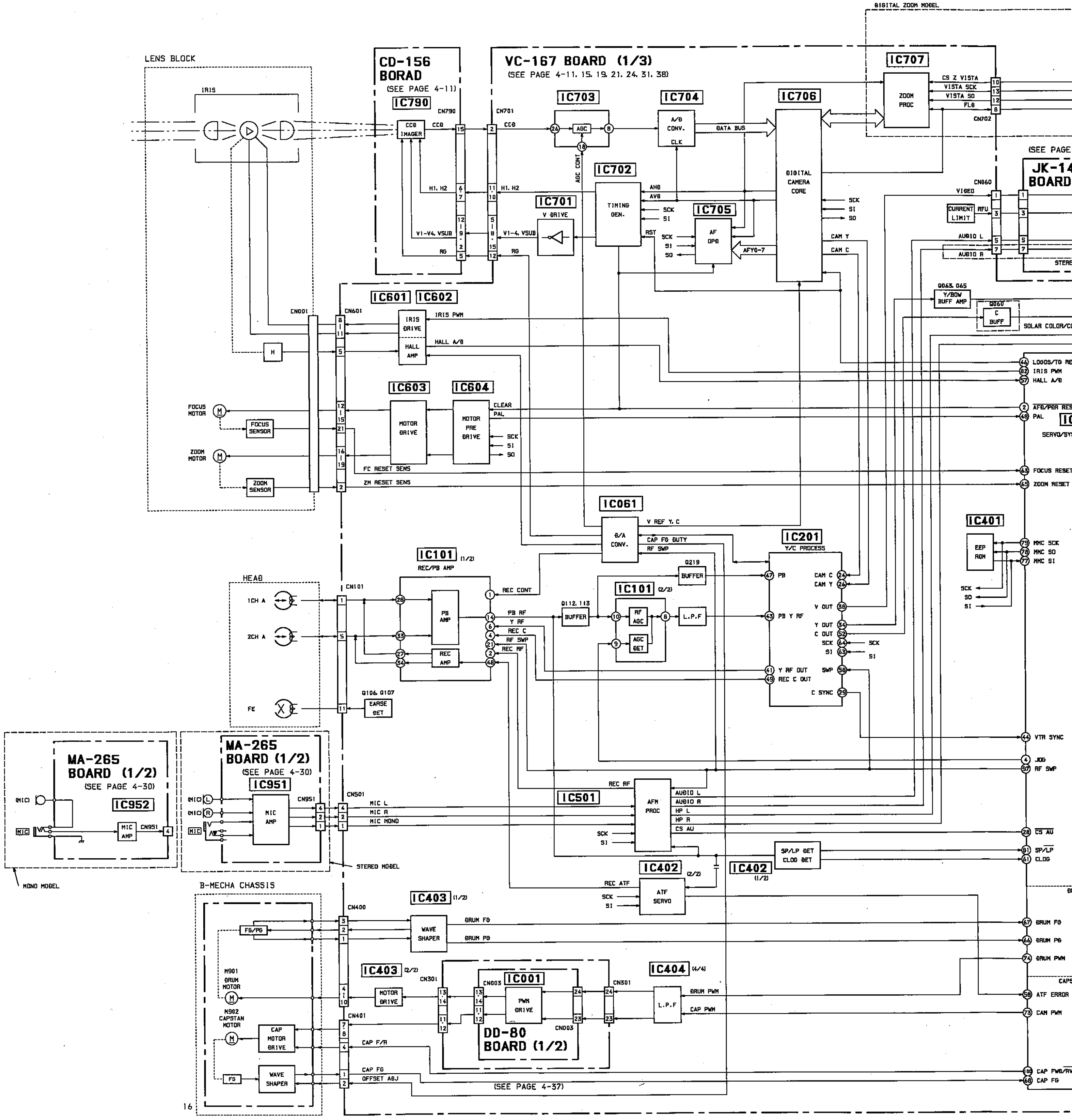
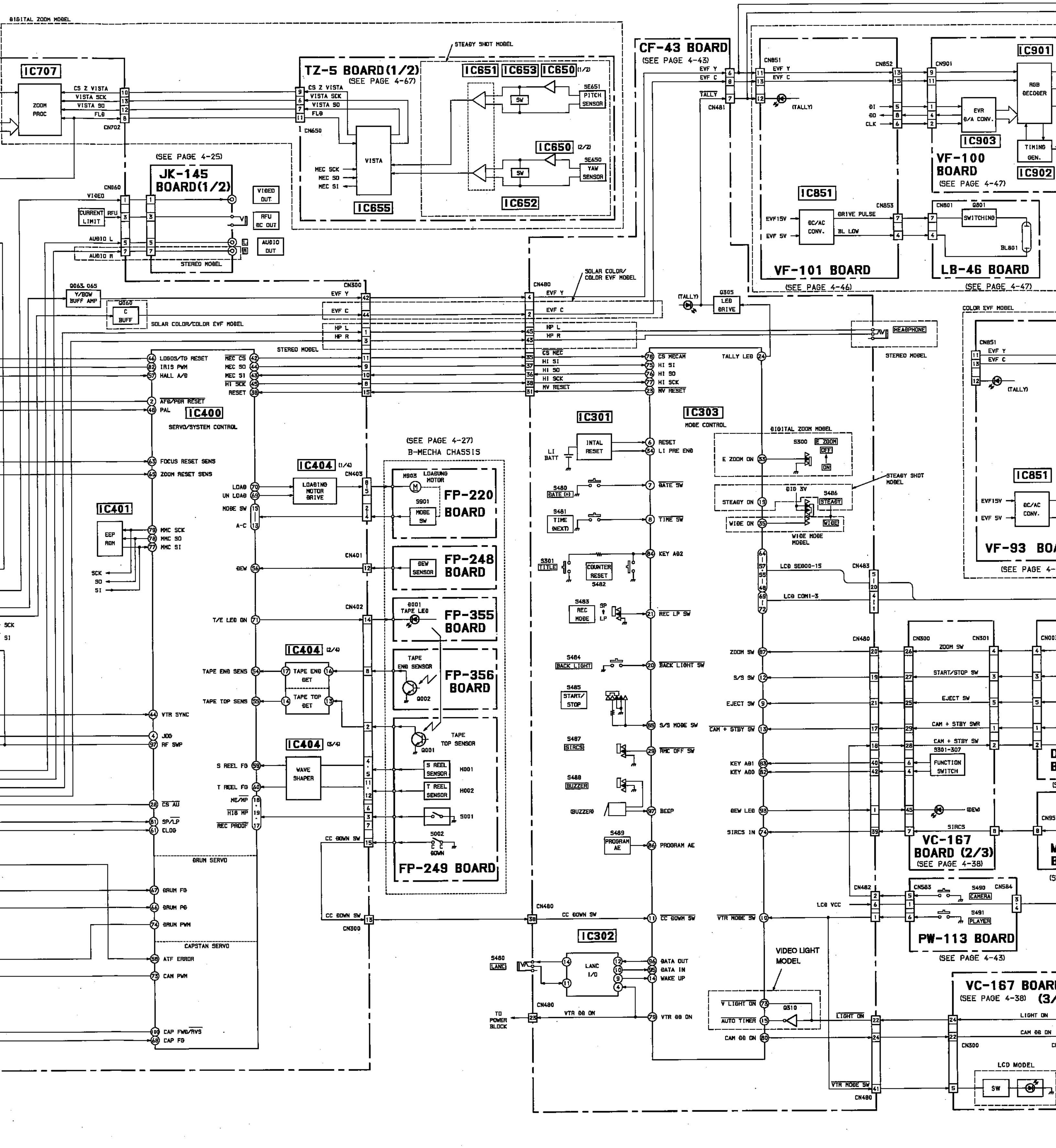
Quality Engineering Dept.

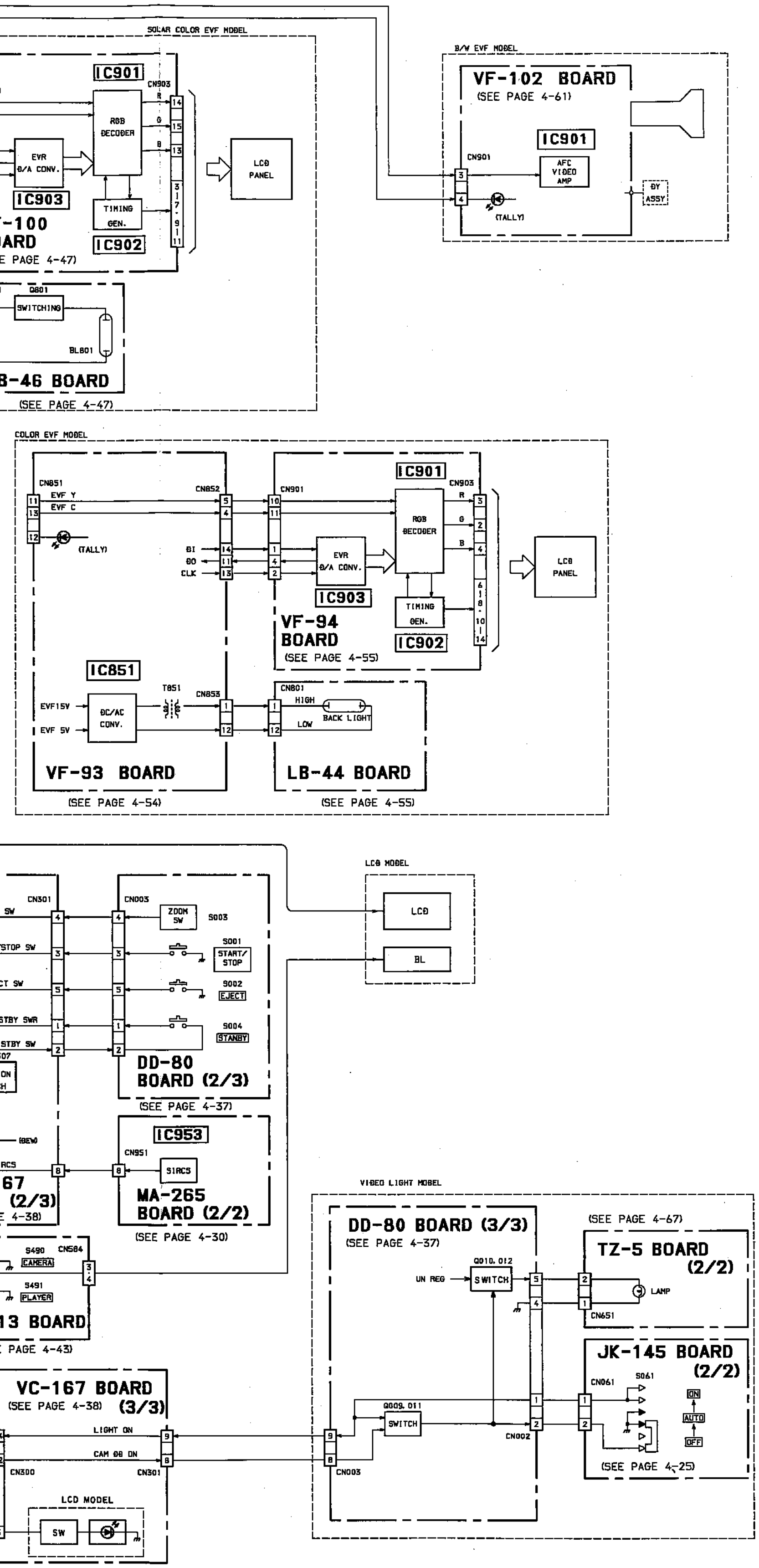
Sony Corporation
Consumer A&V Products Company
Personal A&V Products Div.

SECTION 3
BLOCK DIAGRAMS

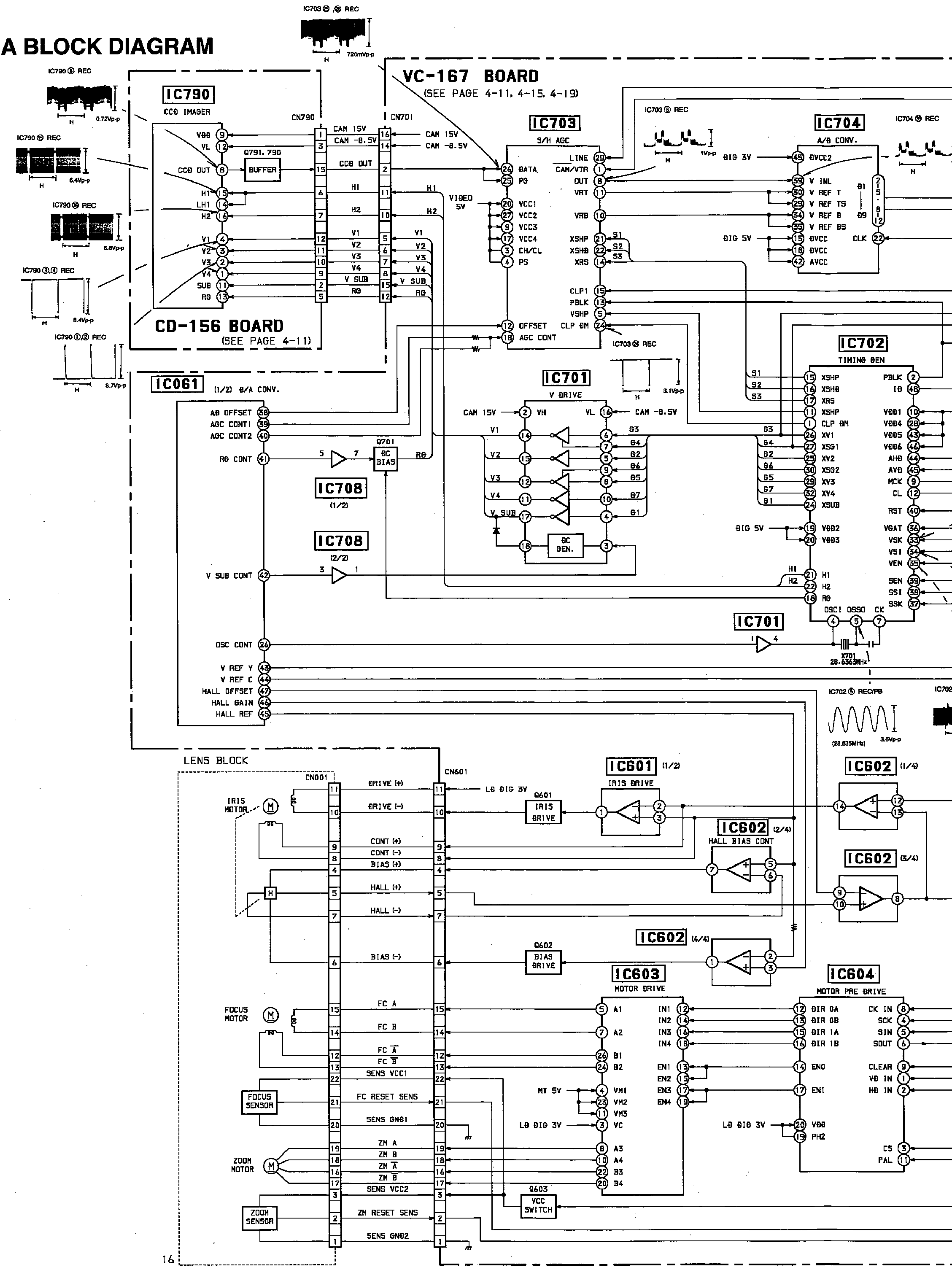
3-1. OVERALL BLOCK DIAGRAM

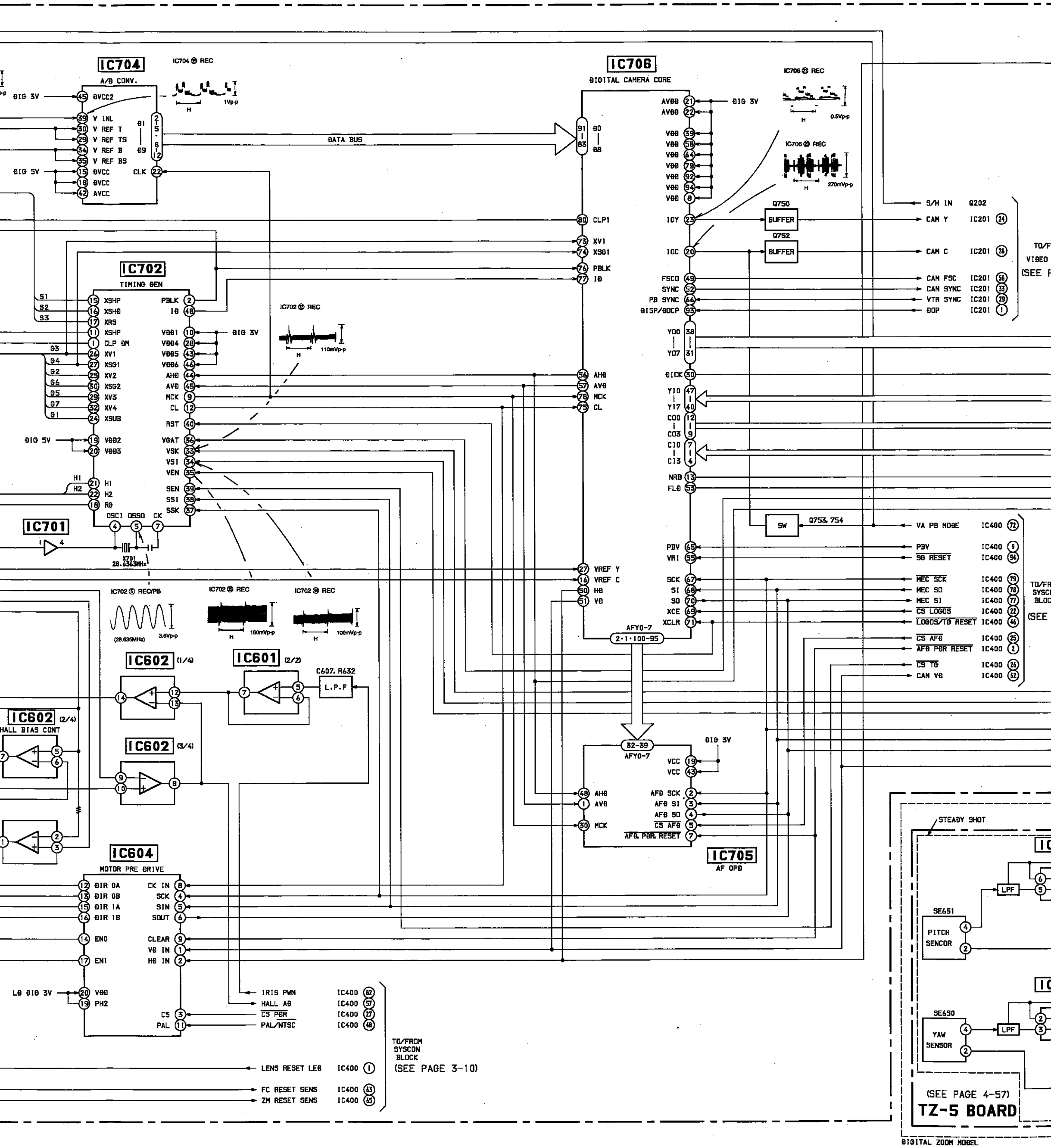

DIGITAL ZOOM MODEL
LENS BLOCK
IRIS
CD-156 BORAD
(SEE PAGE 4-11)
IC790
CCD IMAGER
CN790
VC-167 BOARD (1/3)
(SEE PAGE 4-11, 15, 19, 21, 24, 31, 38)
CN701
CCD
IC703
AGC
AGC CONT
IC704
A/D CONV.
CLK
DATA BUS
IC706
DIGITAL CAMERA CORE
IC707
ZOOM PROC
CS Z VISTA
VISTA SCK
VISTA SO
FLD
CN702
H1, H2
V1-V4, VSUB
RG
IC701
V DRIVE
IC702
TIMING GEN.
AHD
AVD
SCK
SI
RST
IC705
AF DPD
SO
AFYO-7
CAM Y
CAM C
CN860
VIDEO
CURRENT LIMIT
RFU
AUDIO L
AUDIO R
STERE
(SEE PAGE
JK-14
BOARD
Q063, 065
Y/DOW BUFF AMP
Q060
C BUFF
SOLAR COLOR/C
IC601
IC602
CN001
CN601
IRIS DRIVE
IRIS PWM
HALL AMP
HALL A/D
H
IC603
IC604
FOCUS MOTOR
FOCUS SENSOR
ZOOM MOTOR
ZOOM SENSOR
MOTOR DRIVE
MOTOR PRE DRIVE
CLEAR
PAL
FC RESET SENS
ZM RESET SENS
LOGOS/TG RE
IRIS PWM
HALL A/D
AFD/PDR RES
PAL
SERVO/SYS
FOCUS RESET
ZOOM RESET
IC061
D/A CONV.
V REF Y, C
CAP FG DUTY
RF SWP
IC401
EEP ROM
MMC SCK
MMC SO
MMC SI
IC101 (1/2)
REC/PB AMP
HEAD
1CH A
2CH A
FE
CN101
PB AMP
REC AMP
REC CONT
PB RF
Y RF
REC C
RF SWP
REC RF
Q106, Q107
EARSE DET
Q112, 113
BUFFER
IC101 (2/2)
RF AGC
AGC DET
L.P.F
Q219
BUFFER
IC201
Y/C PROCESS
PB
PB Y RF
CAM C
CAM Y
V OUT
Y OUT
C OUT
SCK
SI
SWP
Y RF OUT
REC C OUT
C SYNC
VTR SYNC
JOG
RF SWP
MA-265 BOARD (1/2)
(SEE PAGE 4-30)
IC952
MIC AMP
CN951
MIC
MONO MODEL
MA-265 BOARD (1/2)
(SEE PAGE 4-30)
IC951
MIC AMP
CN951
CN501
MIC L
MIC R
MIC MONO
STEREO MODEL
IC501
AFM PROC
REC RF
AUDIO L
AUDIO R
HP L
HP R
CS AU
SP/LP DET
CLOG DET
IC402 (2/2)
IC402 (1/2)
ATF SERVO
REC ATF
CS AU
SP/LP
CLOG
B-MECHA CHASSIS
CN400
FG/PG
IC403 (1/2)
WAVE SHAPER
DRUM FG
DRUM PG
DRUM FG
DRUM PG
DRUM PWM
M901 DRUM MOTOR
IC403 (2/2)
MOTOR DRIVE
CN301
CN003
IC001
PWM DRIVE
CN003
DD-80 BOARD (1/2)
CN301
IC404 (4/4)
L.P.F
DRUM PWM
CAP PWM
CAPS
ATF ERROR
CAM PWM
M902 CAPSTAN MOTOR
CN401
CAP MOTOR DRIVE
CAP F/R
FG
WAVE SHAPER
CAP FG
OFFSET ADJ
(SEE PAGE 4-37)
CAP FWD/RV
CAP FG
16

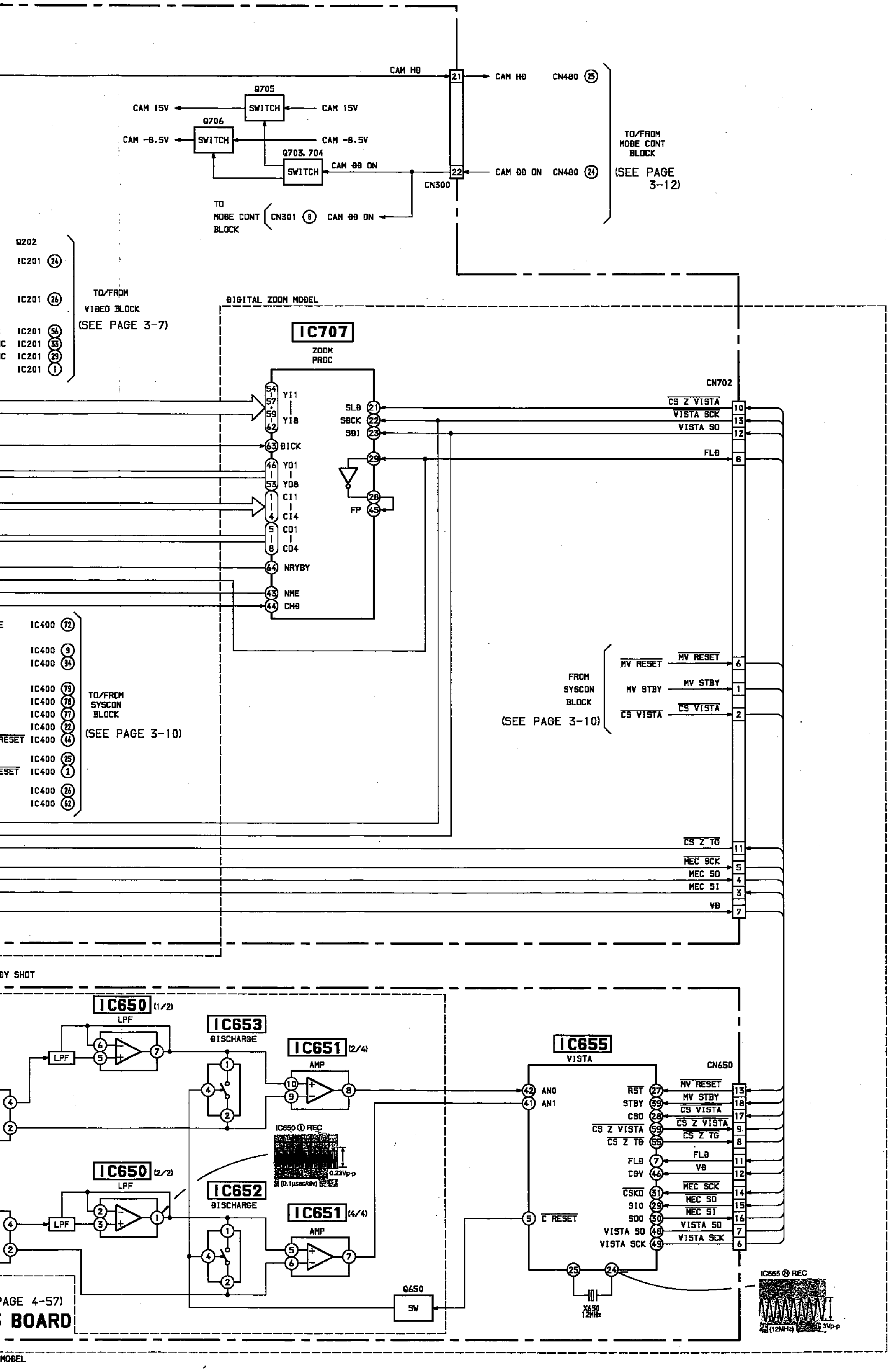

DIGITAL ZOOM MODEL
IC707
ZOOM PROC
CS Z VISTA
VISTA SCK
VISTA SO
FLD
CN702
TZ-5 BOARD(1/2)
(SEE PAGE 4-67)
STEADY SHOT MODEL
IC651
IC653
IC650 (1/2)
IC650 (2/2)
SE651 PITCH SENSOR
SE650 YAW SENSOR
SW
VISTA
MEC SCK
MEC SO
MEC SI
CN650
IC655
IC652
(SEE PAGE 4-25)
JK-145 BOARD(1/2)
CN060
VIDEO
CURRENT LIMIT
RFU
AUDIO L
AUDIO R
VIDEO OUT
RFU DC OUT
AUDIO OUT
L
R
STEREO MODEL
CF-43 BOARD
(SEE PAGE 4-43)
EVF Y
EVF C
TALLY
CN481
CN851
CN852
(TALLY)
DI
DO
CLK
CN901
RGB DECODER
EVR D/A CONV.
IC901
IC903
TIMING GEN.
IC902
VF-100 BOARD
(SEE PAGE 4-47)
IC851
DC/AC CONV.
EVF15V
EVF 5V
DRIVE PULSE
BL LOW
CN853
CN801
Q801
SWITCHING
BL801
VF-101 BOARD
(SEE PAGE 4-46)
LB-46 BOARD
(SEE PAGE 4-47)
SOLAR COLOR/ COLOR EVF MODEL
Q063, 065 Y/DOW BUFF AMP
Q060 C BUFF
SOLAR COLOR/COLOR EVF MODEL
CN300
CN480
HP L
HP R
STEREO MODEL
Q305 LED DRIVE
HEADPHONE
COLOR EVF MODEL
VF-93 BOARD
(SEE PAGE 4-
LOGOS/TG RESET
IRIS PWM
HALL A/D
MEC CS
MEC SO
MEC SI
HI SCK
RESET
AFD/POR RESET
PAL
IC400
SERVO/SYSTEM CONTROL
FOCUS RESET SENS
ZOOM RESET SENS
CS MECAN
HI SI
HI SO
HI SCK
MV RESET
TALLY LED
IC301
INTAL RESET
LI BATT
RESET
LI PRE END
IC303
MODE CONTROL
DIGITAL ZOOM MODEL
S300 E ZOOM OFF ON
E ZOOM ON
STEADY SHOT MODEL
DIG 3V
S486 STEADY
STEADY ON
WIDE ON
WIDE
WIDE MODE MODEL
(SEE PAGE 4-27)
D-MECHA CHASSIS
IC404 (1/4)
LOADING MOTOR DRIVE
LOAD
UN LOAD
MODE SW
A-C
CN403
M903 LOADING MOTOR
S901 MODE SW
FP-220 BOARD
IC401
EEP ROM
MMC SCK
MMC SO
MMC SI
SCK
SO
SI
DEW
CN401
DEW SENSOR
FP-248 BOARD
CN402
T/E LED ON
D001 TAPE LED
FP-355 BOARD
IC404 (2/4)
TAPE END SENS
TAPE TOP SENS
TAPE END DET
TAPE TOP DET
TAPE END SENSOR
Q002
FP-356 BOARD
VTR SYNC
JOG
RF SWP
TAPE TOP SENSOR
Q001
IC404 (3/4)
WAVE SHAPER
S REEL FG
T REEL FG
S REEL SENSOR
T REEL SENSOR
H001
H002
CS AU
ME/MP
HI8 MP
REC PROOF
SP/LP
CLOG
S001
S002
DOWN
CC DOWN SW
FP-249 BOARD
DRUM SERVO
DRUM FG
DRUM PG
DRUM PWM
CAPSTAN SERVO
ATF ERROR
CAM PWM
CAP FWD/RVS
CAP FG
S480 DATE (+)
DATE SW
S481 TIME (NEXT)
TIME SW
S301 TITLE
COUNTER RESET
S482
KEY AD2
S483 REC MODE
SP LP
REC LP SW
LCD SEG00-15
LCD COM1-3
CN483
S484 BACK LIGHT
BACK LIGHT SW
S485 START/STOP
S/S MODE SW
S487 SIRCS
RMC OFF SW
S488 BUZZER
BUZZER
BEEP
S489 PROGRAM AE
PROGRAM AE
ZOOM SW
S/S SW
EJECT SW
CAM + STBY SW
KEY AD1
KEY AD0
DEW LED
SIRCS IN
CN300
CN301
START/STOP SW
CAM + STBY SWR
S301-307
FUNCTION SWITCH
DEW
SIRCS
VC-167 BOARD (2/3)
(SEE PAGE 4-38)
CN482
CN583
CN584
S490 CAMERA
S491 PLAYER
LCD VCC
VTR MODE SW
PW-113 BOARD
(SEE PAGE 4-43)
CC DOWN SW
IC302
LANC I/O
S460 LANC
DATA OUT
DATA IN
WAKE UP
VIDEO LIGHT MODEL
V LIGHT ON
Q310
AUTO TIMER
LIGHT ON
CAM DD ON
TO POWER BLOCK
VTR DD ON
VC-167 BOARD (3/
(SEE PAGE 4-38)
LCD MODEL
SW
CN480
CN003
CN95


SOLAR COLOR EVF MODEL
IC901
CN903
RGB DECODER
R
G
B
14
15
13
EVR D/A CONV.
IC903
TIMING GEN.
IC902
3
1
7
9
1
11
LCD PANEL
-100
ARD
E PAGE 4-47)
Q801
SWITCHING
BL801
B-46 BOARD
(SEE PAGE 4-47)
B/W EVF MODEL
VF-102 BOARD
(SEE PAGE 4-61)
IC901
CN901
AFC VIDEO AMP
DY ASSY
(TALLY)
COLOR EVF MODEL
CN851
EVF Y
EVF C
(TALLY)
CN852
BI
BO
CLK
CN901
IC901
CN903
RGB DECODER
R
G
B
EVR D/A CONV.
IC903
TIMING GEN.
IC902
VF-94 BOARD
(SEE PAGE 4-55)
LCD PANEL
IC851
T851
CN853
EVF15V
EVF 5V
DC/AC CONV.
CN801
HIGH
LOW
BACK LIGHT
VF-93 BOARD
(SEE PAGE 4-54)
LB-44 BOARD
(SEE PAGE 4-55)
LCD MODEL
LCD
BL
CN301
SW
STOP SW
CT SW
STBY SWR
STBY SW
07
ON
H
(BEW)
RCS
67
(2/3)
E 4-38)
CN003
ZOOM SW
S003
S001
START/STOP
S002
EJECT
S004
STANBY
DD-80 BOARD (2/3)
(SEE PAGE 4-37)
IC953
CN951
SIRCS
MA-265 BOARD (2/2)
(SEE PAGE 4-30)
S490
CAMERA
CN584
S491
PLAYER
13 BOARD
PAGE 4-43)
VC-167 BOARD
(SEE PAGE 4-38) (3/3)
LIGHT ON
CAM DD ON
CN300
CN301
LCD MODEL
SW
VIDEO LIGHT MODEL
DD-80 BOARD (3/3)
(SEE PAGE 4-37)
Q010, 012
UN REG
SWITCH
Q009, D11
SWITCH
CN003
CN002
(SEE PAGE 4-67)
TZ-5 BOARD (2/2)
LAMP
CN651
JK-145 BOARD (2/2)
CN061
S061
ON
AUTO
OFF
(SEE PAGE 4-25)

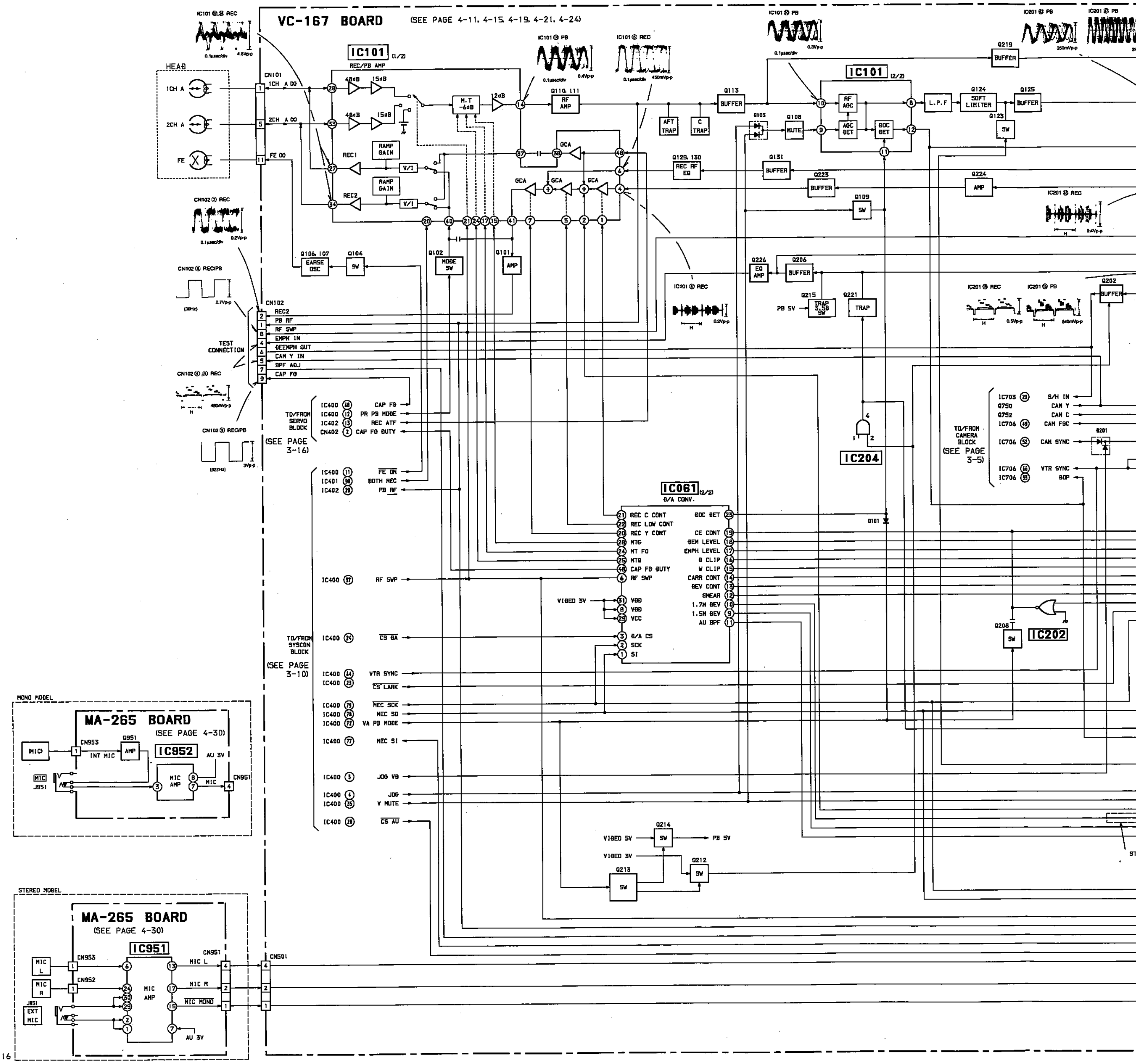
3-2. CAMERA BLOCK DIAGRAM

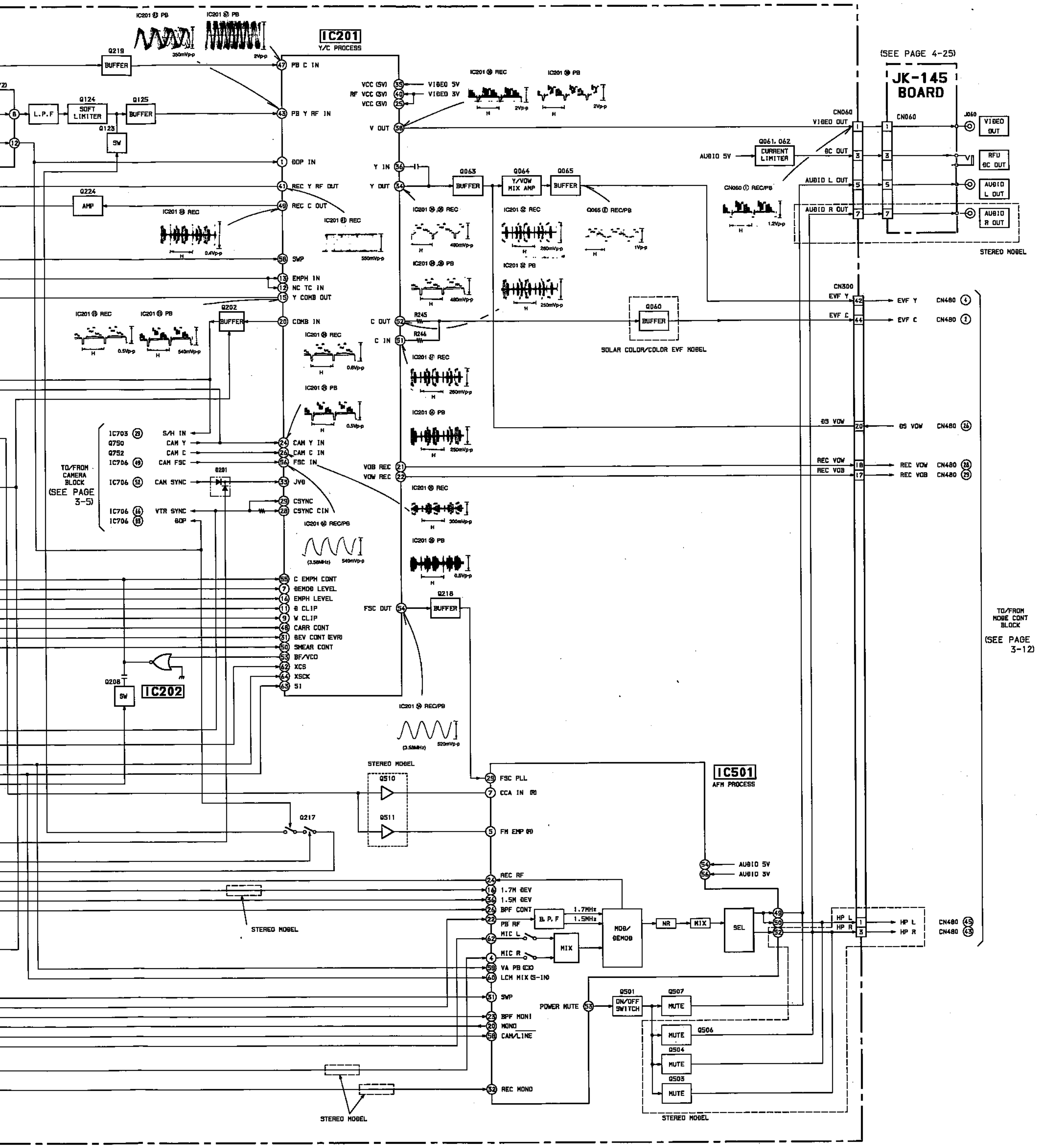

IC703 ㉖, ㉘ REC
720mVp-p
IC790 ⑧ REC
0.72Vp-p
IC790 ⑮ REC
6.4Vp-p
IC790 ⑯ REC
6.8Vp-p
IC790 ③,④ REC
8.4Vp-p
IC790 ①,② REC
8.7Vp-p
IC790
CCD IMAGER
CD-156 BOARD
(SEE PAGE 4-11)
CN790
CN701
Q791, 790
BUFFER
VDD
VL
CCD OUT
H1
LH1
H2
V1
V2
V3
V4
SUB
RG
CAM 15V
CAM -8.5V
VC-167 BOARD
(SEE PAGE 4-11, 4-15, 4-19)
IC703
S/H AGC
DATA
PG
VIDEO 5V
VCC1
VCC2
VCC3
VCC4
CH/CL
PS
LINE
CAM/VTR
OUT
VRT
VRB
XSHP
XSHD
XRS
CLP1
PBLK
VSHP
CLP DM
OFFSET
AGC CONT
IC703 ⑧ REC
1Vp-p
IC703 ㉔ REC
3.1Vp-p
IC704
A/D CONV.
IC704 ⑨ REC
DIG 3V
DVCC2
V INL
V REF T
V REF TS
V REF B
V REF BS
DIG 5V
DVCC
AVCC
CLK
D1
D9
IC702
TIMING GEN
IC701
V DRIVE
VH
DC GEN.
IC061
(1/2) D/A CONV.
AD OFFSET
AGC CONT1
AGC CONT2
RG CONT
V SUB CONT
OSC CONT
V REF Y
V REF C
HALL OFFSET
HALL GAIN
HALL REF
IC708 (1/2)
IC708 (2/2)
Q701
DC BIAS
XSHP
XSHD
XRS
CLP DM
XV1
XSG1
XV2
XSG2
XV3
XV4
XSUB
VDD2
VDD3
PBLK
ID
VDD1
VDD4
VDD5
VDD6
AHD
AVD
MCK
CL
RST
VGAT
VSK
VSI
VEN
SEN
SSI
SSK
OSCI
OSCO
CK
X701
28.6363MHz
IC702 ⑤ REC/PB
3.6Vp-p
(28.635MHz)
LENS BLOCK
CN001
CN601
IRIS MOTOR
FOCUS MOTOR
ZOOM MOTOR
FOCUS SENSOR
ZOOM SENSOR
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL (+)
HALL (-)
BIAS (-)
FC A
FC B
FC A̅
FC B̅
SENS VCC1
FC RESET SENS
SENS GND1
ZM A
ZM B
ZM A̅
ZM B̅
SENS VCC2
ZM RESET SENS
SENS GND2
LD DIG 3V
Q601
IRIS DRIVE
IC601 (1/2)
IRIS DRIVE
IC602 (1/4)
IC602 (2/4)
HALL BIAS CONT
IC602 (3/4)
IC602 (4/4)
Q602
BIAS DRIVE
IC603
MOTOR DRIVE
MT 5V
VM1
VM2
VM3
VC
A1
A2
B1
B2
A3
A4
B3
B4
IN1
IN2
IN3
IN4
EN1
EN2
EN3
EN4
IC604
MOTOR PRE DRIVE
DIR 0A
DIR 0B
DIR 1A
DIR 1B
EN0
EN1
VDD
PH2
CK IN
SCK
SIN
SOUT
CLEAR
VD IN
HD IN
CS
PAL
Q603
VCC SWITCH
16


IC704
A/D CONV.
IC704 ㉒ REC
1Vp-p
DIG 3V
DVCC2
V INL
V REF T
V REF TS
V REF B
V REF BS
DIG 5V
DVCC
AVCC
CLK
DATA BUS
IC706
DIGITAL CAMERA CORE
IC706 ㉓ REC
0.5Vp-p
IC706 ⑳ REC
270mVp-p
AVDD
VDD
CLP1
XV1
XSG1
PBLK
ID
IOY
IOC
Q750
BUFFER
Q752
S/H IN
CAM Y
CAM C
CAM FSC
CAM SYNC
VTR SYNC
DOP
Q202
IC201
TO/F
VIDEO
(SEE P
FSCO
SYNC
PB SYNC
DISP/DOCP
Y00
Y07
DICK
Y10
Y17
C00
C03
C10
C13
NRD
FLD
IC702
TIMING GEN
IC702 ⑮ REC
110mVp-p
XSHP
XSHD
XRS
CLP DM
XV2
XSG2
XV3
XV4
XSUB
VDD1
VDD4
VDD5
VDD6
AHD
AVD
MCK
CL
RST
VGAT
VSK
VSI
VEN
SEN
SSI
SSK
VDD2
VDD3
H1
H2
RG
OSC1
OSCO
CK
IC701
X701
28.6363MHz
IC702 ⑤ REC/PB
(28.635MHz)
3.6Vp-p
IC702 ㊳ REC
160mVp-p
IC702 ㊴ REC
100mVp-p
S1
S2
S3
G1
G2
G3
G4
G5
G6
G7
SW
Q753, 754
VA PB MODE
PBV
SG RESET
VREF Y
VREF C
HD
VD
SCK
SI
SO
XCE
XCLR
MEC SCK
MEC SO
MEC SI
CS LOGOS
LOGOS/TG RESET
CS AFD
AFD PDR RESET
CS TG
CAM VD
IC400
TO/FR
SYSC
BLOC
(SEE
AFY0-7
2·1·100-95
32-39
IC705
AF OPD
VCC
AFD SCK
AFD SI
AFD SO
CS AFD
AFD PDR RESET
IC602 (1/4)
IC601 (2/2)
C607, R632
L.P.F
IC602 (2/4)
HALL BIAS CONT
IC602 (3/4)
IC604
MOTOR PRE DRIVE
DIR 0A
DIR 0B
DIR 1A
DIR 1B
EN0
EN1
CK IN
SIN
SOUT
CLEAR
VD IN
HD IN
LD DIG 3V
PH2
CS
PAL
IRIS PWM
HALL AD
CS PDR
PAL/NTSC
TO/FROM
SYSCON
BLOCK
(SEE PAGE 3-10)
LENS RESET LED
FC RESET SENS
ZM RESET SENS
STEADY SHOT
SE651
PITCH
SENCOR
SE650
YAW
SENSOR
LPF
(SEE PAGE 4-57)
TZ-5 BOARD
DIGITAL ZOOM MODEL

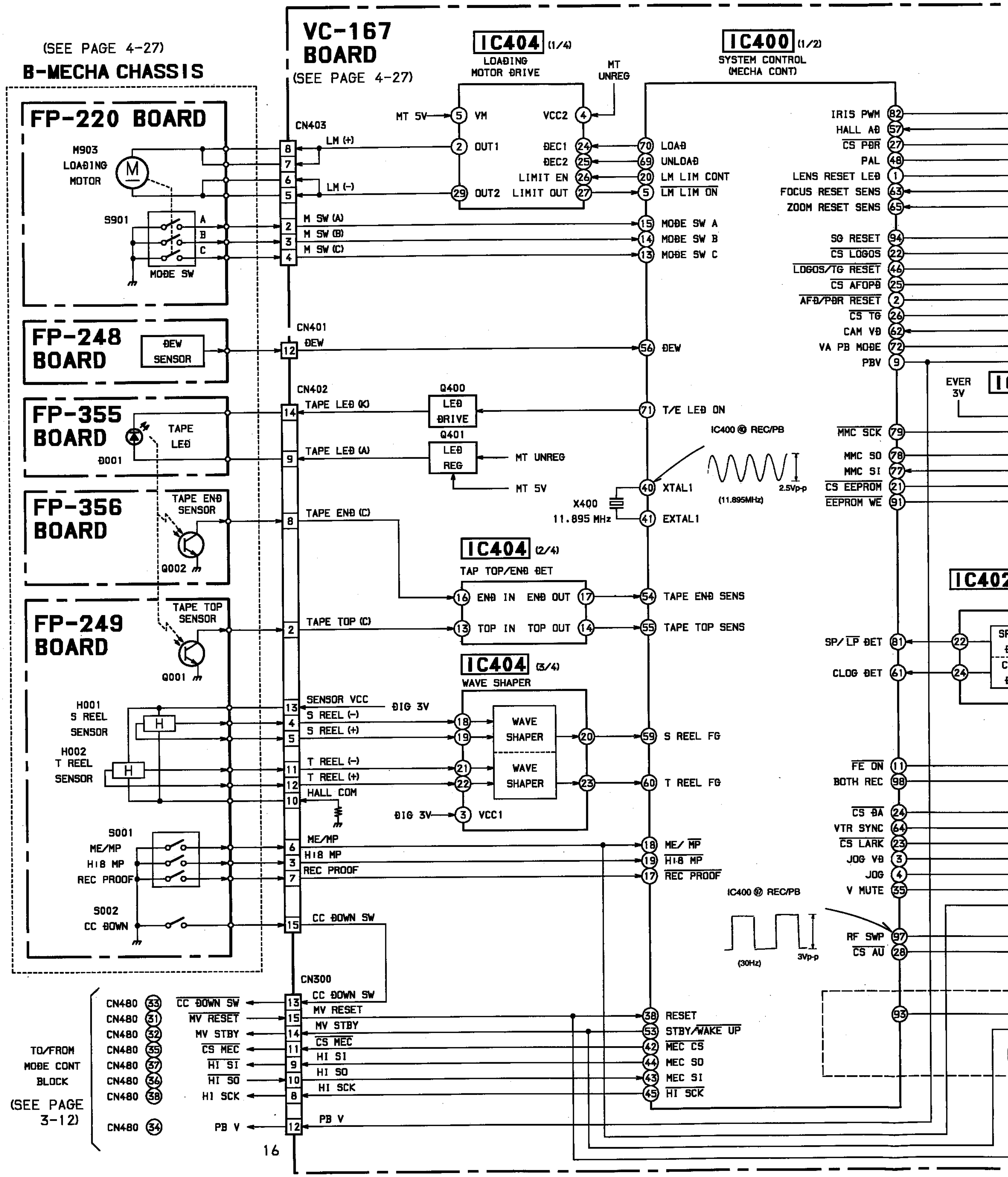

CAM HD
CAM HD
CN480 (25)
Q705
SWITCH
CAM 15V
CAM 15V
Q706
SWITCH
CAM -8.5V
CAM -8.5V
Q703, 704
SWITCH
CAM DD ON
CAM DD ON
CN480 (24)
CN300
TO/FROM MODE CONT BLOCK
(SEE PAGE 3-12)
TO MODE CONT BLOCK
CN301 (8) CAM DD ON
Q202
IC201 (24)
IC201 (26)
IC201 (56)
IC201 (33)
IC201 (29)
IC201 (1)
TO/FROM VIDEO BLOCK
(SEE PAGE 3-7)
DIGITAL ZOOM MODEL
IC707
ZOOM PROC
YI1 YI8
DICK
YO1 YO8
CI1 CI4
CO1 CO4
NRYBY
NME
CHD
SLD
SDCK
SDI
FP
CN702
CS Z VISTA
VISTA SCK
VISTA SO
FLD
IC400 (72)
IC400 (9)
IC400 (94)
IC400 (79)
IC400 (78)
IC400 (77)
IC400 (22)
RESET IC400 (46)
IC400 (25)
ESET IC400 (2)
IC400 (26)
IC400 (62)
TO/FROM SYSCON BLOCK
(SEE PAGE 3-10)
FROM SYSCON BLOCK
(SEE PAGE 3-10)
MV RESET
MV STBY
CS VISTA
CS Z TG
MEC SCK
MEC SO
MEC SI
VD
DY SHOT
IC650 (1/2)
LPF
LPF
IC653
DISCHARGE
IC651 (2/4)
AMP
IC650 ① REC
0.23Vp-p
(0.1μsec/div)
IC650 (2/2)
LPF
LPF
IC652
DISCHARGE
IC651 (4/4)
AMP
Q650
SW
IC655
VISTA
AN0
AN1
C RESET
RST
STBY
CSO
CS Z VISTA
CS Z TG
FLD
CGV
CSKO
SIO
SOO
VISTA SO
VISTA SCK
X650 12MHz
CN650
MV RESET
MV STBY
CS VISTA
CS Z VISTA
CS Z TG
FLD
VD
MEC SCK
MEC SO
MEC SI
VISTA SO
VISTA SCK
IC655 ㉔ REC
(12MHz)
3Vp-p
PAGE 4-57)
BOARD
MODEL

3-3. VIDEO/AUDIO BLOCK DIAGRAM


VC-167 BOARD (SEE PAGE 4-11, 4-15, 4-19, 4-21, 4-24)
IC101 (1/2)
REC/PB AMP
IC101 (2/2)
HEAD
1CH A
2CH A
FE
CN101
1CH A 00
2CH A 00
FE 00
48dB
15dB
M.T -6dB
12dB
RF AMP
Q110, 111
RAMP GAIN
V/I
REC1
REC2
GCA
AFT TRAP
C TRAP
Q113
BUFFER
D103
Q108
MUTE
RF AGC
AGC DET
DOC DET
L.P.F
Q124
SOFT LIMITER
Q125
BUFFER
Q219
BUFFER
Q123
SW
Q129, 130
REC RF EQ
Q131
BUFFER
Q223
BUFFER
Q224
AMP
Q109
SW
Q106, 107
EARSE OSC
Q104
SW
Q102
MODE SW
Q101
AMP
Q226
EQ AMP
Q206
BUFFER
Q215
TRAP 3.58
Q221
TRAP
PB 5V
Q202
BUFFER
CN102
REC2
PB RF
RF SWP
EMPH IN
DEEMPH OUT
CAM Y IN
BPF ADJ
CAP FG
TEST CONNECTION
TO/FROM SERVO BLOCK (SEE PAGE 3-16)
IC400 (48) CAP FG
IC400 (12) PR PB MODE
IC402 (13) REC ATF
CN402 (2) CAP FG DUTY
IC400 (11) FE ON
IC401 (98) BOTH REC
IC402 (29) PB RF
IC400 (97) RF SWP
TO/FROM SYSCON BLOCK (SEE PAGE 3-10)
IC400 (24) CS DA
IC400 (64) VTR SYNC
IC400 (23) CS LARK
IC400 (79) MEC SCK
IC400 (78) MEC SD
IC400 (72) VA PB MODE
IC400 (77) MEC SI
IC400 (3) JOG VD
IC400 (4) JOG
IC400 (35) V MUTE
IC400 (28) CS AU
IC061 (2/2)
D/A CONV.
REC C CONT
REC LOW CONT
REC Y CONT
MTG
MT FG
MTQ
CAP FG DUTY
RF SWP
VDD
VCC
D/A CS
SCK
SI
DOC DET
CE CONT
DEM LEVEL
EMPH LEVEL
D CLIP
W CLIP
CARR CONT
DEV CONT
SMEAR
1.7M DEV
1.5M DEV
AU BPF
VIDEO 3V
IC204
IC202
Q208
SW
D101
TO/FROM CAMERA BLOCK (SEE PAGE 3-5)
IC703 (29) S/H IN
Q750 CAM Y
Q752 CAM C
IC706 (49) CAM FSC
IC706 (52) CAM SYNC
IC706 (46) VTR SYNC
IC706 (53) BOP
D201
Q214
VIDEO 5V
SW
PB 5V
Q213
Q212
MONO MODEL
MA-265 BOARD (SEE PAGE 4-30)
CN953
Q951
INT MIC
AMP
IC952
AU 3V
MIC
J951
MIC AMP
CN951
STEREO MODEL
MA-265 BOARD (SEE PAGE 4-30)
IC951
MIC L
MIC R
EXT MIC
CN952
MIC MONO
CN501
IC101 (8),(8) REC
IC101 (8) PB
IC101 (8) REC
IC101 (8) PB
IC201 (8) PB
IC201 (8) REC
CN102 (2) REC
CN102 (8) REC/PB
CN102 (4),(5) REC
CN102 (9) REC/PB
IC101 (8) REC
IC201 (8) REC
IC201 (8) PB
16


IC201
Y/C PROCESS
IC201 ⑬ PB
IC201 ㊼ PB
350mVp-p
2Vp-p
Q219
BUFFER
Q124
SOFT LIMITER
Q125
BUFFER
Q123
SW
L.P.F
⑧
⑫
㊼ PB C IN
㊸ PB Y RF IN
① DOP IN
㊶ REC Y RF OUT
㊾ REC C OUT
Q224
AMP
IC201 ㊾ REC
0.4Vp-p
IC201 ㊶ REC
550mVp-p
㊿ SWP
⑬ EMPH IN
⑫ NC TC IN
⑮ Y COMB OUT
⑳ COMB IN
Q202
BUFFER
IC201 ⑮ REC
IC201 ⑮ PB
0.5Vp-p
540mVp-p
IC201 ⑳ REC
0.8Vp-p
IC201 ⑳ PB
0.5Vp-p
IC703 ㉙
Q750
Q752
IC706 ㊾
IC706 ㊷
IC706 ㊻
IC706 ㊸
S/H IN
CAM Y
CAM C
CAM FSC
CAM SYNC
VTR SYNC
DOP
TO/FROM CAMERA BLOCK
(SEE PAGE 3-5)
D201
㉔ CAM Y IN
㉖ CAM C IN
㊻ FSC IN
㉝ JVD
㉙ CSYNC
㉘ CSYNC CIN
IC201 ㊻ REC/PB
(3.58MHz)
540mVp-p
㊺ C EMPH CONT
⑦ DEMOD LEVEL
⑯ EMPH LEVEL
⑪ B CLIP
⑨ W CLIP
㊽ CARR CONT
㉛ DEV CONT (EVR)
㊿ SMEAR CONT
㊸ BF/VCO
㊷ XCS
㊹ XSCK
㊸ SI
Q208
SW
IC202
VCC (5V) ㉟
RF VCC (3V) ㊵
VCC (3V) ㉕
VIDEO 5V
VIDEO 3V
IC201 ㊳ REC
IC201 ㊳ PB
2Vp-p
V OUT ㊳
Y IN ㊱
Y OUT ㉞
Q063
BUFFER
Q064
Y/VOW MIX AMP
Q065
BUFFER
IC201 ㉞,㊱ REC
480mVp-p
IC201 ㉞,㊱ PB
480mVp-p
IC201 ㊷ REC
260mVp-p
IC201 ㊷ PB
250mVp-p
Q065 Ⓔ REC/PB
1Vp-p
C OUT ㊷
C IN ㊶
R245
R246
IC201 ㊶ REC
260mVp-p
IC201 ㊶ PB
250mVp-p
VOB REC ㉑
VOW REC ㉒
IC201 ㉒ REC
300mVp-p
IC201 ㉒ PB
0.5Vp-p
FSC OUT ㊹
Q218
BUFFER
IC201 ㊹ REC/PB
(3.58MHz)
520mVp-p
H
Q060
BUFFER
SOLAR COLOR/COLOR EVF MODEL
(SEE PAGE 4-25)
JK-145 BOARD
CN060
VIDEO OUT
DC OUT
AUDIO L OUT
AUDIO R OUT
AUDIO 5V
Q061, 062
CURRENT LIMITER
CN060 ① REC/PB
1.2Vp-p
J060
VIDEO OUT
RFU DC OUT
AUDIO L OUT
AUDIO R OUT
STEREO MODEL
CN300
EVF Y
EVF C
DS VOW
REC VOW
REC VOB
EVF Y CN480 ④
EVF C CN480 ②
DS VOW CN480 ㉖
REC VOW CN480 ㉘
REC VOB CN480 ㉙
TO/FROM MODE CONT BLOCK
(SEE PAGE 3-12)
IC501
AFM PROCESS
STEREO MODEL
Q510
Q511
Q217
㉙ FSC PLL
⑦ CCA IN (R)
⑤ FM EMP (R)
㉔ REC RF
⑯ 1.7M DEV
㊱ 1.5M DEV
㉖ BPF CONT
㉒ PB RF
㊷ MIC L
④ MIC R
㊾ VA PB (C)
㊿ LCM MIX (S-IN)
㉛ SWP
㉓ BPF MONI
⑳ MONO
㊿ CAM/LINE
㉜ REC MONO
B.P.F
1.7MHz
1.5MHz
MIX
MOD/DEMOD
NR
MIX
SEL
㊹ AUDIO 5V
㊻ AUDIO 3V
㊾
㊿
㊷
HP L
HP R
HP L CN480 ㊺
HP R CN480 ㊸
POWER MUTE ㊸
Q501
ON/OFF SWITCH
Q507
MUTE
Q506
MUTE
Q504
MUTE
Q503
MUTE
STEREO MODEL
STEREO MODEL

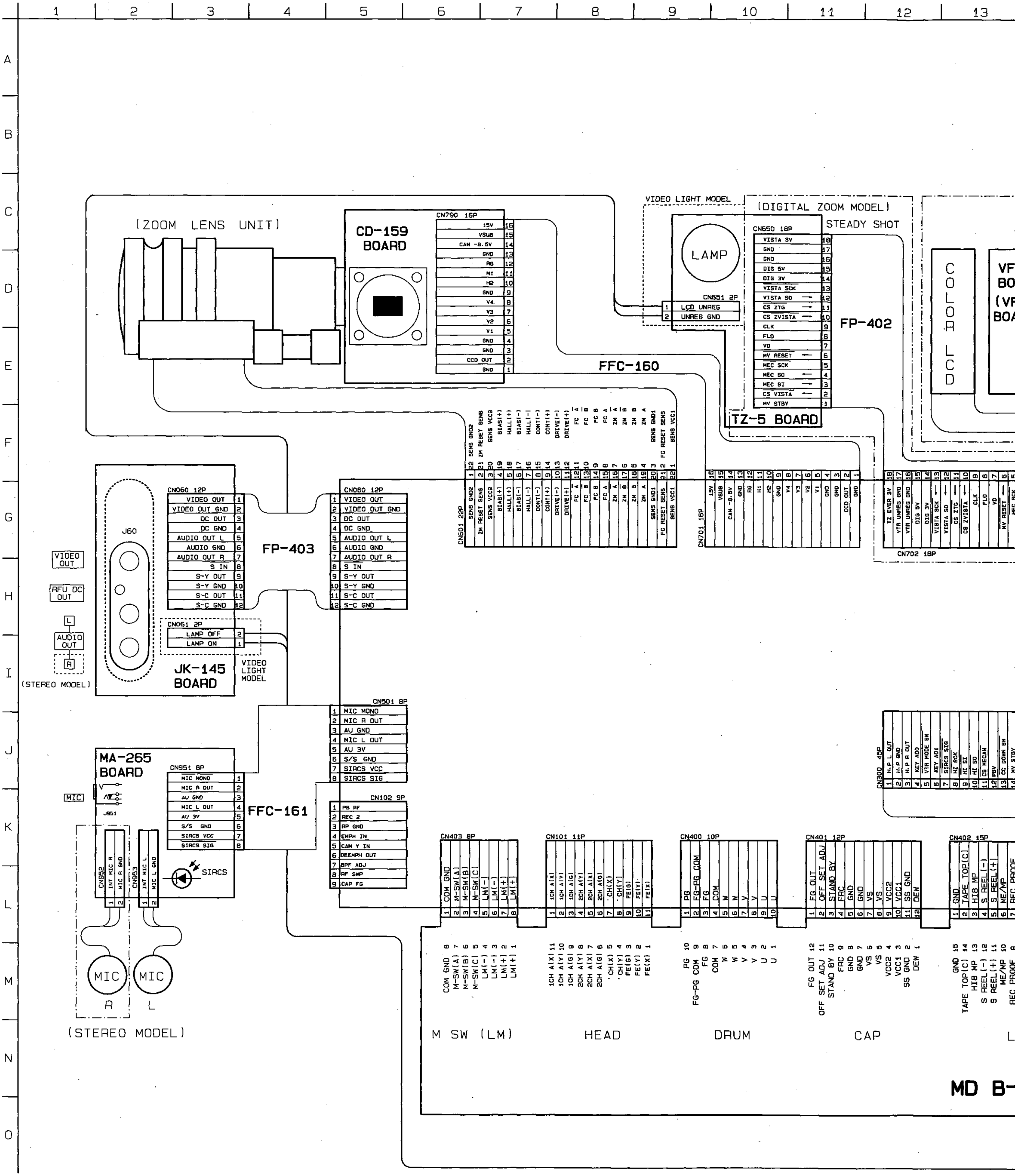
3-4. SYSTEM CONTROL BLOCK DIAGRAM


(SEE PAGE 4-27)
B-MECHA CHASSIS
FP-220 BOARD
M903
LOADING
MOTOR
M
S901
A
B
C
MODE SW
FP-248
BOARD
DEW
SENSOR
FP-355
BOARD
TAPE
LED
D001
FP-356
BOARD
TAPE END
SENSOR
Q002
FP-249
BOARD
TAPE TOP
SENSOR
Q001
H001
S REEL
SENSOR
H002
T REEL
SENSOR
H
H
S001
ME/MP
HI8 MP
REC PROOF
S002
CC DOWN
VC-167
BOARD
(SEE PAGE 4-27)
CN403
LM (+)
LM (-)
M SW (A)
M SW (B)
M SW (C)
CN401
DEW
CN402
TAPE LED (K)
TAPE LED (A)
TAPE END (C)
TAPE TOP (C)
SENSOR VCC
DIG 3V
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
HALL COM
ME/MP
HI8 MP
REC PROOF
CC DOWN SW
CN300
CC DOWN SW
MV RESET
MV STBY
CS MEC
HI SI
HI SO
HI SCK
PB V
16
IC404 (1/4)
LOADING
MOTOR DRIVE
MT 5V
5 VM
VCC2 4
MT
UNREG
2 OUT1
DEC1 24
DEC2 25
LIMIT EN 26
29 OUT2
LIMIT OUT 27
Q400
LED
DRIVE
Q401
LED
REG
MT UNREG
MT 5V
X400
11.895 MHz
IC404 (2/4)
TAP TOP/END DET
16 END IN
END OUT 17
13 TOP IN
TOP OUT 14
IC404 (3/4)
WAVE SHAPER
18
19
WAVE
SHAPER
20
21
22
WAVE
SHAPER
23
DIG 3V
3 VCC1
IC400 (1/2)
SYSTEM CONTROL
(MECHA CONT)
70 LOAD
69 UNLOAD
20 LM LIM CONT
5 LM LIM ON
15 MODE SW A
14 MODE SW B
13 MODE SW C
56 DEW
71 T/E LED ON
IC400 40 REC/PB
2.5Vp-p
(11.895MHz)
40 XTAL1
41 EXTAL1
54 TAPE END SENS
55 TAPE TOP SENS
59 S REEL FG
60 T REEL FG
18 ME/MP
19 HI8 MP
17 REC PROOF
IC400 97 REC/PB
(30Hz)
3Vp-p
38 RESET
53 STBY/WAKE UP
42 MEC CS
44 MEC SO
43 MEC SI
45 HI SCK
IRIS PWM 82
HALL AD 57
CS PDR 27
PAL 48
LENS RESET LED 1
FOCUS RESET SENS 63
ZOOM RESET SENS 65
SG RESET 94
CS LOGOS 22
LOGOS/TG RESET 46
CS AFOPD 25
AFD/PDR RESET 2
CS TG 26
CAM VD 62
VA PB MODE 72
PBV 9
EVER
3V
MMC SCK 79
MMC SO 78
MMC SI 77
CS EEPROM 21
EEPROM WE 91
IC402
SP/LP DET 81
CLOG DET 61
22
24
FE ON 11
BOTH REC 98
CS DA 24
VTR SYNC 64
CS LARK 23
JOG VD 3
JOG 4
V MUTE 35
RF SWP 97
CS AU 28
93
TO/FROM
MODE CONT
BLOCK
(SEE PAGE
3-12)
CN480 33
CN480 31
CN480 32
CN480 35
CN480 37
CN480 36
CN480 38
CN480 34
CC DOWN SW
MV RESET
MV STBY
CS MEC
HI SI
HI SO
HI SCK
PB V

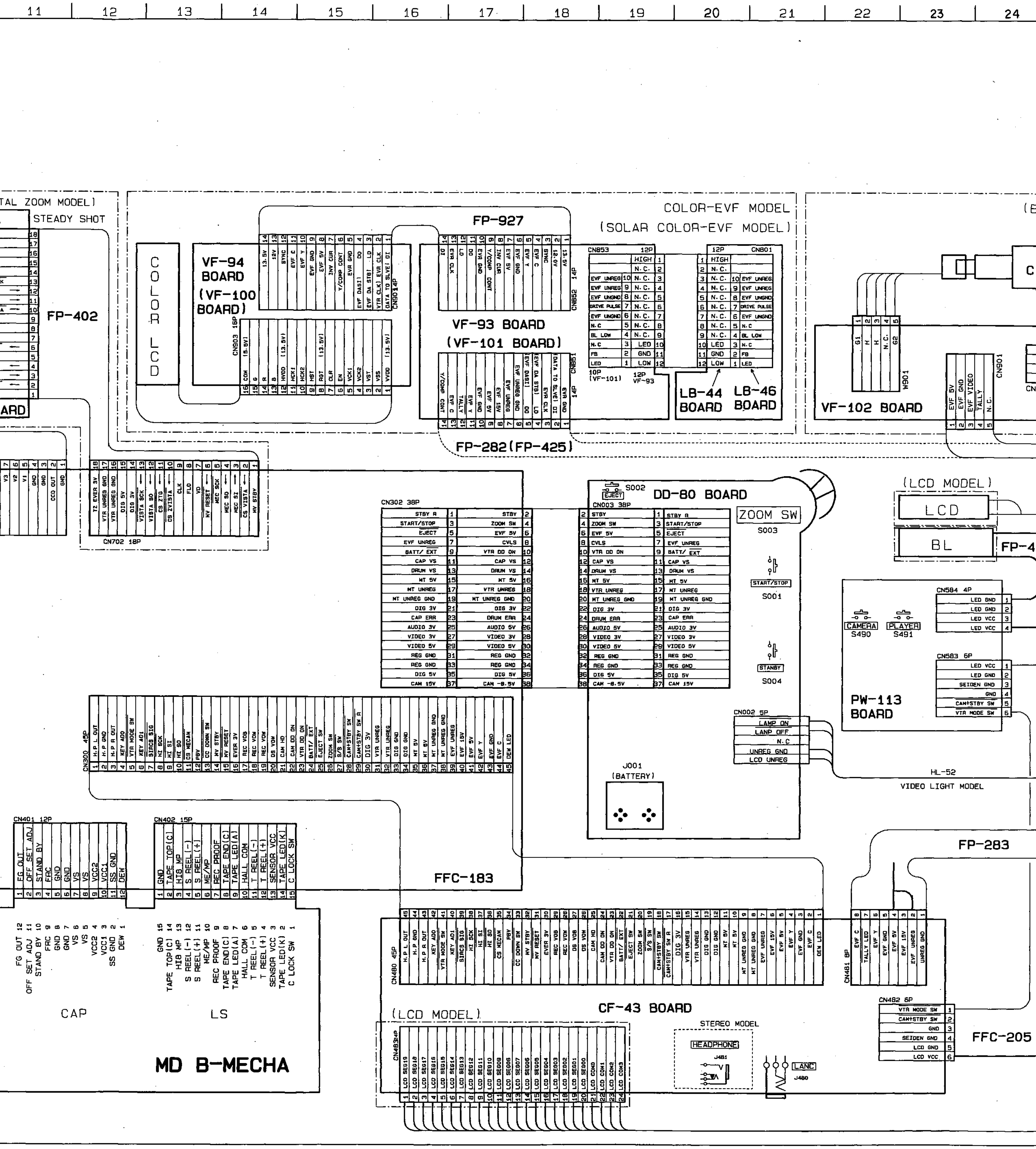
SECTION 4

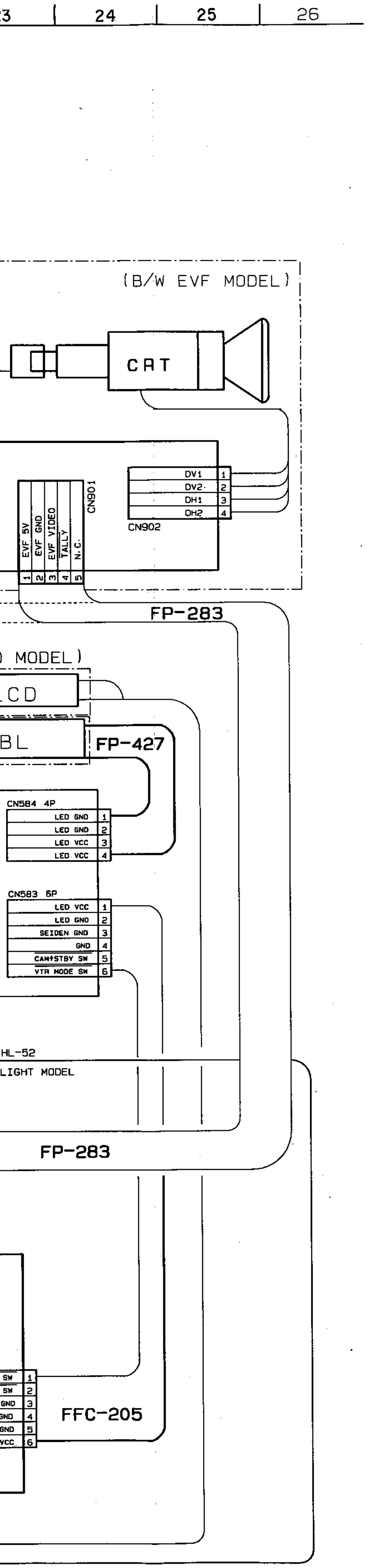
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J K L M N O
(ZOOM LENS UNIT)
CD-159 BOARD
CN790 16P
15V 16
VSUB 15
CAM -8.5V 14
GND 13
RG 12
H1 11
H2 10
GND 9
V4 8
V3 7
V2 6
V1 5
GND 4
GND 3
CCD OUT 2
GND 1
FFC-160
VIDEO LIGHT MODEL
LAMP
CN651 2P
1 LCD UNREG
2 UNREG GND
(DIGITAL ZOOM MODEL)
STEADY SHOT
CN650 18P
VISTA 3V 18
GND 17
GND 16
DIG 5V 15
DIG 3V 14
VISTA SCK 13
VISTA SO 12
CS ZTG 11
CS ZVISTA 10
CLK 9
FLD 8
VD 7
MV RESET 6
MEC SCK 5
MEC SO 4
MEC SI 3
CS VISTA 2
MV STBY 1
FP-402
TZ-5 BOARD
COLOR LCD
VF BO (VF BOA
CN501 22P
1 SENS GND2
2 ZM RESET SENS
3 SENS VCC2
4 BIAS(+)
5 HALL(+)
6 BIAS(-)
7 HALL(-)
8 CONT(-)
9 CONT(+)
10 DRIVE(-)
11 DRIVE(+)
12 FC A
13 FC B
14 FC B
15 FC A
16 ZM A
17 ZM B
18 ZM B
19 ZM A
20 SENS GND1
21 FC RESET SENS
22 SENS VCC1
CN701 16P
15V 16
VSUB 15
CAM -8.5V 14
GND 13
RG 12
H1 11
H2 10
GND 9
V4 8
V3 7
V2 6
V1 5
GND 4
GND 3
CCD OUT 2
GND 1
CN702 18P
TZ EVER 3V 18
VTR UNREG GND 17
VTR UNREG GND 16
DIG 5V 15
DIG 3V 14
VISTA SCK 13
VISTA SO 12
CS ZTG 11
CS ZVISTA 10
CLK 9
FLD 8
VD 7
MV RESET 6
MEC SCK 5
J60
CN060 12P
VIDEO OUT 1
VIDEO OUT GND 2
DC OUT 3
DC GND 4
AUDIO OUT L 5
AUDIO GND 6
AUDIO OUT R 7
S IN 8
S-Y OUT 9
S-Y GND 10
S-C OUT 11
S-C GND 12
FP-403
CN060 12P
1 VIDEO OUT
2 VIDEO OUT GND
3 DC OUT
4 DC GND
5 AUDIO OUT L
6 AUDIO GND
7 AUDIO OUT R
8 S IN
9 S-Y OUT
10 S-Y GND
11 S-C OUT
12 S-C GND
CN061 2P
LAMP OFF 2
LAMP ON 1
VIDEO LIGHT MODEL
JK-145 BOARD
VIDEO OUT
RFU DC OUT
L
AUDIO OUT
R
(STEREO MODEL)
MA-265 BOARD
MIC
J951
CN951 8P
MIC MONO 1
MIC R OUT 2
AU GND 3
MIC L OUT 4
AU 3V 5
S/S GND 6
SIRCS VCC 7
SIRCS SIG 8
FFC-161
SIRCS
CN952
1 INT MIC R
2 MIC R GND
CN953
1 INT MIC L
2 MIC L GND
MIC R
MIC L
(STEREO MODEL)
CN501 8P
1 MIC MONO
2 MIC R OUT
3 AU GND
4 MIC L OUT
5 AU 3V
6 S/S GND
7 SIRCS VCC
8 SIRCS SIG
CN102 9P
1 PB RF
2 REC 2
3 RP GND
4 EMPH IN
5 CAM Y IN
6 DEEMPH OUT
7 BPF ADJ
8 RF SWP
9 CAP FG
CN300 45P
1 H.P L OUT
2 H.P GND
3 H.P R OUT
4 KEY ADO
5 VTR MODE SW
6 KEY AD1
7 SIRCS SIG
8 HI SCK
9 HI SI
10 HI SO
11 CS MECAM
12 PBV
13 CC DOWN SW
14 MV STBY
CN403 8P
1 COM GND
2 M-SW(A)
3 M-SW(B)
4 M-SW(C)
5 LM(-)
6 LM(-)
7 LM(+)
8 LM(+)
CN101 11P
1 1CH A(X)
2 1CH A(Y)
3 1CH A(G)
4 2CH A(Y)
5 2CH A(X)
6 2CH A(G)
7 CH(X)
8 CH(Y)
9 FE(G)
10 FE(Y)
11 FE(X)
CN400 10P
1 PG
2 FG-PG COM
3 FG
4 COM
5 W
6 W
7 V
8 V
9 U
10 U
CN401 12P
1 FG OUT
2 OFF SET ADJ
3 STAND BY
4 FRC
5 GND
6 GND
7 VS
8 VS
9 VCC2
10 VCC1
11 SS GND
12 DEW
CN402 15P
1 GND
2 TAPE TOP(C)
3 HI8 MP
4 S REEL(-)
5 S REEL(+)
6 ME/MP
7 REC PROOF
COM GND 8
M-SW(A) 7
M-SW(B) 6
M-SW(C) 5
LM(-) 4
LM(-) 3
LM(+) 2
LM(+) 1
1CH A(X) 11
1CH A(Y) 10
1CH A(G) 9
2CH A(Y) 8
2CH A(X) 7
2CH A(G) 6
CH(X) 5
CH(Y) 4
FE(G) 3
FE(Y) 2
FE(X) 1
PG 10
FG-PG COM 9
FG 8
COM 7
W 6
W 5
V 4
V 3
U 2
U 1
FG OUT 12
OFF SET ADJ 11
STAND BY 10
FRC 9
GND 8
GND 7
VS 6
VS 5
VCC2 4
VCC1 3
SS GND 2
DEW 1
GND 15
TAPE TOP(C) 14
HI8 MP 13
S REEL(-) 12
S REEL(+) 11
ME/MP 10
REC PROOF 9
M SW (LM)
HEAD
DRUM
CAP
L
MD B-

11
12
13
14
15
16
17
18
19
20
21
22
23
24
TAL ZOOM MODEL)
STEADY SHOT
FP-402
ARD
COLOR LCD
VF-94 BOARD
(VF-100 BOARD)
CN903 16P
FP-927
CN901 14P
VF-93 BOARD
(VF-101 BOARD)
CN852 14P
CN851 14P
FP-282(FP-425)
COLOR-EVF MODEL
(SOLAR COLOR-EVF MODEL)
CN853 12P
CN801 12P
10P (VF-101)
12P VF-93
LB-44 BOARD
LB-46 BOARD
VF-102 BOARD
W901
CN901
CN702 18P
CN302 38P
DD-80 BOARD
CN003 38P
S002 EJECT
ZOOM SW S003
START/STOP S001
STANBY S004
CN002 5P
J001 (BATTERY)
(LCD MODEL)
LCD
BL
FP-4
PW-113 BOARD
CN584 4P
CN583 6P
CAMERA S490
PLAYER S491
HL-52
VIDEO LIGHT MODEL
FP-283
CN300 45P
FFC-183
CN401 12P
CN402 15P
CAP
LS
MD B-MECHA
CN480 45P
CN481 8P
CN482 6P
CF-43 BOARD
(LCD MODEL)
CN483 24P
STEREO MODEL
HEADPHONE J481
LANC J480
FFC-205

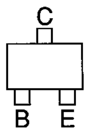

3
24
25
26
(B/W EVF MODEL)
CRT
DV1 1
DV2 2
DH1 3
DH2 4
CN902
CN901
EVF 5V 1
EVF GND 2
EVF VIDEO 3
TALLY 4
N.C. 5
FP-283
MODEL)
LCD
BL
FP-427
CN584 4P
LED GND 1
LED GND 2
LED VCC 3
LED VCC 4
CN583 6P
LED VCC 1
LED GND 2
SEIDEN GND 3
GND 4
CAM+STBY SW 5
VTR MODE SW 6
HL-52
LIGHT MODEL
FP-283
SW 1
SW 2
GND 3
GND 4
GND 5
VCC 6
FFC-205

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **For printed wiring boards.**
- •— : indicated a lead wire mounted on the component side.
- ▨ :Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- ● :Through hole is omitted.
- Printed wiring board which has four layers structure but inner two layers' patterns are omitted.

> Caution:
> SIDE A: The pattern face side which is seen when the upper case is opened.
> SIDE B: The opposite pattern face side to the pattern seen when the upper case is opened.

- Chip parts (3-terminal transistor)



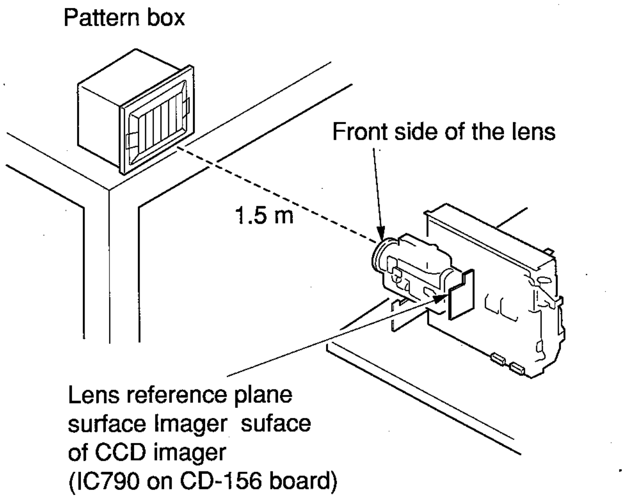
C: Collector
B: Base
E: Emitter

- **For schematic diagrams.**
- Caution when replacing chip parts..
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistor are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ, : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μ μF. 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair. *
- ▬ : B+ Line. *
- ▬▬▬ : B− Line. *
- ⇨ : IN/OUT direction of (+,−) B LINE. *
- Circled numbers refer to waveforms. *
- Signal name

  *E／—L→E／$\overline{L}$ *—VAPB→$\overline{VAPB}$
  —EDIT→$\overline{EDIT}$ *VAPB→VAPB

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values * and reference waveforms.
  (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.)

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

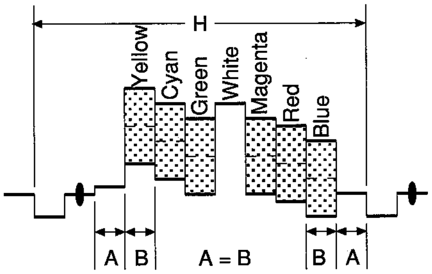


Fig. a (Video output terminal output waveform)

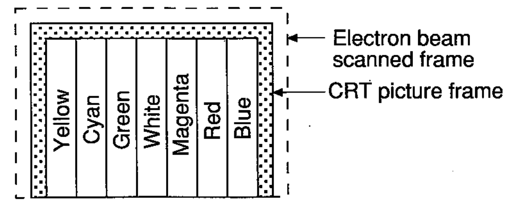


Fig. b (Picture on monitor TV)

> **NOTE:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
> Replace only with part number specified.

> **Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
> Ne les remplacer que par une pièce portant le numéro spéc-ifie.

> When indicating parts by reference number, please include the board name.

- * : indicated by the color red.

4-2. PRINT

VC-167 BOARD

C061	(B)F–2
C069	(B)D–3
C072	(A)D–7
C073	(B)D–6
C075	(A)F–2
C076	(B)E–2
C077	(B)E–2
C078	(B)E–2
C101	(B)A–4
C102	(B)A–5
C103	(B)A–4
C104	(B)A–5
C106	(A)A–6
C107	(B)B–6
C108	(B)A–6
C109	(B)A–6
C110	(B)A–6
C111	(A)A–4
C112	(A)A–4
C113	(B)A–4
C114	(A)A–4
C115	(A)A–5
C116	(B)A–5
C117	(A)A–5
C118	(A)A–5
C119	(B)A–5
C120	(B)A–5
C121	(B)B–5
C122	(B)B–5
C123	(B)B–5
C124	(A)B–5
C125	(A)B–5
C127	(B)B–5
C128	(B)B–5
C129	(B)B–5
C130	(A)B–5
C134	(B)B–4
C135	(A)A–4
C136	(A)B–4
C137	(A)B–4
C138	(A)B–5
C139	(A)B–5
C140	(A)B–6
C141	(A)B–5
C142	(A)B–5
C143	(A)B–6
C148	(B)B–3
C149	(B)B–3
C150	(B)B–3
C152	(A)B–3
C153	(B)B–4
C154	(B)B–3
C156	(B)B–4
C157	(B)C–3
C160	(B)B–5
C162	(B)A–3
C163	(B)A–3
C164	(A)A–3
C165	(A)A–3
C166	(A)B–3
C167	(A)B–3
C168	(B)A–4
C169	(A)B–4
C170	(A)C–4
C171	(B)C–6
C202	(B)E–3

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

VC-167 BOARD

C061	(B)F-2	C203	(B)F-3	C411	(B)B-9	C537	(B)B-2	C746	(B)F-9	IC603	(B)G-4	Q063	(B)E-2	R077
C069	(B)D-3	C204	(B)E-3	C412	(B)B-9	C538	(B)A-3	C748	(B)F-9	IC604	(A)G-4	Q064	(A)E-2	R078
C072	(A)D-7	C205	(B)F-3	C414	(A)A-8	C540	(B)C-2	C749	(A)F-7	IC701	(A)F-5	Q065	(A)E-2	R079
C073	(B)D-6	C206	(B)F-3	C415	(A)A-7	C542	(A)C-1	C750	(A)F-7	IC702	(B)F-6	Q101	(A)A-5	R080
C075	(A)F-2	C207	(A)E-4	C416	(B)D-9	C543	(A)C-2	C751	(A)F-6	IC703	(B)E-6	Q102	(A)B-5	R081
C076	(B)E-2	C208	(A)E-4	C417	(A)C-9	C544	(B)B-2	C755	(A)F-6	IC704	(B)F-6	Q103	(A)B-6	R082
C077	(B)E-2	C209	(B)F-4	C418	(A)B-9	C546	(B)C-1	C757	(A)F-6	IC705	(A)F-7	Q104	(B)B-6	R083
C078	(B)E-2	C210	(A)F-3	C419	(B)C-9	C548	(A)C-2	C758	(B)E-6	IC706	(B)F-8	Q105	(A)A-6	R084
C101	(B)A-4	C211	(A)F-3	C420	(A)C-9	C550	(B)A-2	C759	(B)E-7	IC707	(A)F-8	Q106	(B)A-6	R085
C102	(B)A-5	C212	(B)F-4	C421	(A)C-9	C553	(A)C-1	C760	(A)G-8	IC708	(A)G-5	Q107	(B)A-6	R086
C103	(B)A-4	C213	(B)F-3	C423	(A)A-7	C556	(A)C-2	C761	(A)F-9	IC710	(B)G-7	Q108	(B)B-4	R087
C104	(B)A-5	C214	(B)F-3	C424	(A)C-9	C557	(A)C-3	C764	(A)E-8			Q109	(B)B-4	R088
C106	(A)A-6	C215	(A)E-3	C425	(B)B-9	C558	(B)C-2	C765	(A)E-8	L061	(A)E-1	Q110	(A)B-4	R091
C107	(B)B-6	C216	(B)G-2	C426	(B)A-9	C561	(B)A-2	C772	(A)E-8	L062	(B)D-6	Q111	(A)B-4	R092
C108	(B)A-6	C217	(B)G-2	C427	(B)A-9	C563	(A)A-1	C773	(A)E-6	L063	(A)G-2	Q112	(A)B-5	R093
C109	(B)A-6	C218	(A)D-3	C428	(A)A-9	C564	(A)C-2	C774	(A)E-6	L101	(A)A-4	Q113	(A)B-5	R102
C110	(B)A-6	C219	(B)F-4	C429	(B)A-9	C565	(A)B-2	C775	(A)E-6	L102	(A)A-5	Q120	(A)C-5	R103
C111	(A)A-4	C221	(A)D-5	C430	(B)A-9	C602	(A)F-3			L103	(A)B-6	Q123	(B)B-3	R104
C112	(A)A-4	C223	(A)D-4	C431	(A)A-8	C603	(A)F-3	CN060	(B)F-1	L104	(B)B-6	Q124	(A)B-3	R105
C113	(B)A-4	C224	(A)E-5	C432	(A)A-9	C604	(A)G-2	CN101	(B)A-5	L105	(B)B-5	Q125	(A)B-3	R106
C114	(A)A-4	C225	(A)E-5	C433	(A)A-9	C605	(B)F-2	CN102	(A)B-1	L106	(A)B-5	Q129	(B)A-3	R107
C115	(A)A-5	C226	(B)D-5	C434	(B)B-8	C606	(A)F-3	CN300	(B)B-8	L107	(A)B-6	Q130	(B)A-3	R108
C116	(B)A-5	C227	(B)D-5	C435	(A)A-9	C607	(A)F-3	CN301	(A)E-10	L108	(A)B-5	Q131	(B)B-3	R109
C117	(A)A-5	C228	(A)E-5	C436	(A)A-8	C608	(A)F-3	CN400	(B)A-6	L109	(A)B-5	Q202	(B)F-4	R110
C118	(A)A-5	C229	(B)D-5	C437	(B)A-7	C609	(A)G-2	CN401	(B)A-7	L113	(B)B-5	Q206	(A)E-4	R111
C119	(B)A-5	C230	(B)D-5	C438	(B)A-7	C610	(A)G-2	CN402	(B)A-9	L114	(B)B-3	Q208	(A)D-2	R112
C120	(B)A-5	C231	(A)E-3	C439	(B)A-7	C611	(B)G-3	CN403	(B)A-3	L115	(B)B-3	Q211	(A)D-5	R113
C121	(B)B-5	C232	(A)E-3	C441	(A)A-7	C612	(B)G-3	CN501	(B)B-1	L116	(A)C-3	Q212	(A)C-3	R114
C122	(B)B-5	C233	(A)D-2	C442	(B)A-10	C613	(B)F-5	CN601	(B)G-3	L118	(A)C-3	Q213	(A)C-4	R115
C123	(B)B-5	C234	(A)D-4	C443	(B)A-9	C614	(B)F-4	CN701	(B)F-5	L119	(A)A-4	Q214	(A)C-4	R116
C124	(A)B-5	C235	(A)D-4	C444	(A)A-7	C615	(B)F-4	CN702	(A)F-9	L120	(B)B-4	Q215	(B)E-5	R117
C125	(A)B-5	C236	(A)D-4	C445	(A)A-7	C616	(A)G-4			L121	(A)B-4	Q217	(A)D-2	R118
C127	(B)B-5	C237	(B)D-4	C446	(A)A-7	C618	(B)G-3	D101	(B)B-4	L202	(B)F-3	Q218	(B)D-2	R119
C128	(B)B-5	C238	(B)D-3	C447	(A)A-6	C619	(B)G-3	D102	(B)B-3	L203	(B)E-4	Q219	(A)C-3	R120
C129	(B)B-5	C240	(A)E-3	C448	(B)A-6	C620	(A)G-2	D103	(A)C-4	L205	(A)D-5	Q221	(A)F-5	R121
C130	(A)B-5	C242	(A)C-5	C449	(B)A-7	C701	(B)G-5	D201	(B)E-5	L207	(A)E-5	Q223	(B)D-2	R122
C134	(B)B-4	C243	(B)F-3	C450	(A)A-6	C702	(B)G-5	D203	(A)C-4	L210	(B)D-3	Q224	(B)D-2	R123
C135	(A)A-4	C244	(B)D-4	C451	(B)A-6	C703	(B)G-5	D301	(B)B-9	L211	(B)D-4	Q226	(A)F-4	R125
C136	(A)B-4	C245	(B)E-4	C452	(A)A-6	C704	(B)F-5	D302	(B)B-8	L212	(A)C-5	Q227	(B)D-5	R126
C137	(A)B-4	C246	(A)D-4	C453	(A)A-6	C706	(B)F-5	D309	(B)G-4	L213	(B)F-3	Q301	(A)B-9	R127
C138	(A)B-5	C247	(B)D-2	C456	(A)B-9	C707	(B)G-5	D310	(B)G-5	L214	(B)D-6	Q302	(B)B-9	R128
C139	(A)B-5	C248	(A)C-2	C458	(A)A-6	C708	(B)G-5	D311	(B)G-6	L215	(B)E-5	Q303	(A)E-9	R129
C140	(A)B-6	C249	(A)C-2	C502	(A)A-2	C710	(A)F-5	D312	(B)G-8	L400	(A)D-8	Q400	(B)A-9	R130
C141	(A)B-5	C252	(B)D-5	C505	(B)A-2	C711	(A)G-6	D313	(B)G-9	L401	(A)B-9	Q401	(B)A-9	R131
C142	(A)B-5	C254	(A)F-5	C506	(A)A-2	C712	(B)G-6	D317	(A)G-6	L601	(B)G-2	Q501	(B)A-2	R132
C143	(A)B-6	C256	(A)D-3	C507	(A)A-2	C713	(A)G-6	D318	(A)G-7	L602	(B)G-4	Q503	(A)A-2	R133
C148	(B)B-3	C257	(A)F-4	C511	(A)A-3	C714	(A)F-6	D319	(B)G-8	L603	(A)G-3	Q504	(B)A-2	R134
C149	(B)B-3	C259	(A)D-5	C512	(A)A-2	C715	(B)F-6	D701	(A)G-6	L701	(A)F-6	Q506	(A)A-2	R141
C150	(B)B-3	C260	(B)D-6	C515	(A)A-3	C717	(A)G-6	D702	(A)G-5	L703	(A)G-6	Q507	(B)A-2	R149
C152	(A)B-3	C261	(A)C-3	C516	(A)A-3	C718	(B)G-6	D703	(A)F-5	L704	(A)F-5	Q510	(B)C-9	R150
C153	(B)B-4	C263	(B)D-2	C517	(A)A-2	C719	(A)E-6	D706	(B)G-6	L706	(A)G-8	Q511	(B)C-2	R152
C154	(B)B-3	C265	(B)D-3	C518	(A)A-2	C720	(B)F-5			L707	(A)G-7	Q601	(A)F-3	R153
C156	(B)B-4	C266	(B)D-3	C520	(B)C-2	C722	(A)F-6	IC061	(A)D-6	L708	(A)G-7	Q602	(B)F-2	R154
C157	(B)C-3	C267	(B)E-5	C521	(B)B-2	C724	(B)G-6	IC101	(B)B-5	L709	(A)G-9	Q603	(B)G-3	R155
C160	(B)B-5	C269	(B)E-3	C522	(B)B-3	C725	(A)E-5	IC201	(B)E-4	L710	(B)F-10	Q701	(B)G-5	R156
C162	(B)A-3	C270	(A)E-3	C523	(B)B-2	C726	(A)F-5	IC202	(B)E-3	L712	(A)F-7	Q703	(B)G-10	R157
C163	(B)A-3	C271	(A)E-3	C525	(B)A-2	C727	(B)F-5	IC204	(A)F-4	L714	(A)F-6	Q704	(B)G-10	R158
C164	(A)A-3	C400	(B)C-8	C526	(A)B-1	C728	(B)E-5	IC400	(B)C-8	L715	(A)F-7	Q705	(B)G-9	R159
C165	(A)A-3	C401	(B)C-8	C528	(A)A-2	C729	(B)E-5	IC401	(A)D-9	L716	(A)G-9	Q706	(B)G-9	R160
C166	(A)B-3	C402	(B)B-9	C529	(A)B-2	C730	(A)G-5	IC402	(A)C-9	L751	(A)E-9	Q750	(B)E-9	R161
C167	(A)B-3	C403	(B)C-8	C530	(B)B-3	C731	(A)F-6	IC403	(A)A-7	L752	(A)E-8	Q752	(B)E-8	R162
C168	(B)A-4	C404	(B)D-8	C531	(A)C-1	C732	(B)E-6	IC404	(A)A-9	L753	(A)E-8	Q753	(A)E-8	R163
C169	(A)B-4	C405	(A)C-9	C532	(B)B-3	C734	(B)G-6	IC405	(B)C-9			Q754	(A)E-8	R164
C170	(A)C-4	C406	(B)C-9	C533	(A)B-3	C735	(A)G-8	IC501	(A)B-2	Q060	(A)E-1			R165
C171	(B)C-6	C407	(A)D-8	C534	(B)B-3	C736	(A)G-8	IC601	(A)G-3	Q061	(A)F-2	R062	(B)D-6	R166
C202	(B)E-3	C408	(A)D-8	C535	(B)B-2	C745	(B)E-8	IC602	(A)F-2	Q062	(A)F-1	R063	(A)E-1	R167

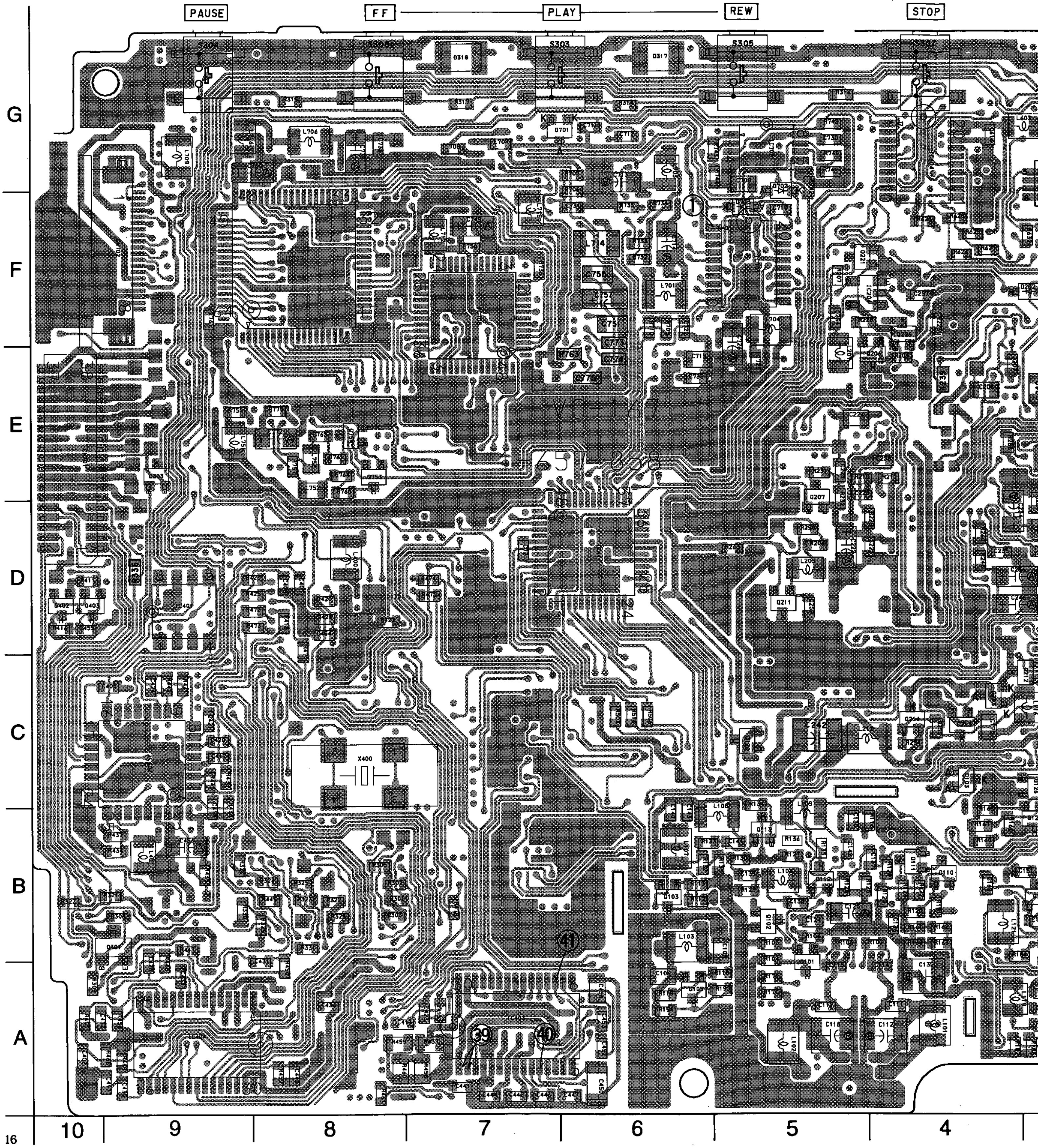
R077	(A)F-2
R078	(A)F-2
R079	(A)F-2
R080	(A)F-2
R081	(B)E-2
R082	(B)E-2
R083	(B)E-2
R084	(A)E-2
R085	(B)E-2
R086	(A)D-2
R087	(B)E-2
R088	(B)E-2
R091	(B)E-2
R092	(B)E-2
R093	(B)E-2
R102	(A)B-4
R103	(A)B-5
R104	(A)A-5
R105	(A)B-5
R106	(A)B-5
R107	(B)B-5
R108	(B)B-5
R109	(B)B-5
R110	(B)B-6
R111	(B)B-5
R112	(A)B-6
R113	(A)B-6
R114	(B)B-5
R115	(B)C-4
R116	(A)B-4
R117	(B)B-4
R118	(A)A-5
R119	(A)A-6
R120	(A)B-4
R121	(A)B-4
R122	(A)B-4
R123	(A)B-4
R125	(A)B-5
R126	(A)B-4
R127	(A)B-5
R128	(A)B-5
R129	(A)B-5
R130	(A)B-5
R131	(A)B-5
R132	(A)B-6
R133	(A)B-6
R134	(A)B-5
R141	(B)B-4
R149	(B)C-4
R150	(B)B-3
R152	(B)B-4
R153	(A)B-3
R154	(A)B-3
R155	(A)B-3
R156	(B)B-3
R157	(B)B-3
R158	(B)B-3
R159	(B)B-3
R160	(A)B-4
R161	(A)B-4
R162	(A)B-4
R163	(A)B-4
R164	(A)B-4
R165	(B)B-4
R166	(A)B-4
R167	(A)B-4
R168	(A)B-4
R169	(A)B-3
R170	(A)A-5
R171	(A)A-5
R172	(B)A-5
R173	(B)A-5
R176	(B)C-3
R178	(B)A-3
R179	(B)A-3
R180	(A)A-3
R181	(A)A-3
R182	(A)A-4
R183	(A)A-3
R184	(A)B-4
R185	(B)A-3
R186	(B)A-3
R187	(B)A-3
R188	(B)B-6
R189	(B)B-6
R190	(B)A-6
R191	(B)B-6
R192	(B)A-6
R193	(B)A-6
R194	(A)A-6
R195	(A)A-5
R196	(B)A-6
R197	(B)B-3
R201	(B)F-3
R202	(B)F-3
R203	(B)F-3
R204	(A)E-4
R206	(A)D-5
R210	(A)E-5
R211	(A)E-4
R212	(B)F-4
R213	(B)F-4
R214	(B)G-1
R215	(B)G-1
R216	(B)G-2
R218	(A)E-3
R219	(B)D-4
R220	(B)D-4
R221	(A)D-3
R222	(B)E-4
R223	(A)F-4
R225	(B)D-2
R226	(B)D-5
R228	(A)F-5
R229	(A)D-4
R230	(B)D-4
R232	(B)E-5
R234	(B)E-4
R235	(B)D-4
R239	(A)E-4
R241	(B)E-4
R243	(B)D-3
R244	(A)D-2
R245	(B)D-2
R246	(A)D-2
R247	(A)D-2
R248	(A)D-4
R249	(B)D-3
R254	(A)C-4
R255	(A)C-4
R256	(B)D-2
R257	(B)D-2
R259	(A)D-3
R260	(A)D-4
R263	(A)D-5
R265	(B)D-2
R266	(A)E-3
R267	(B)D-4
R268	(B)D-2
R273	(A)C-3
R274	(A)C-3
R276	(A)C-3
R277	(A)C-3
R279	(B)C-3
R281	(B)D-3
R283	(B)D-3
R284	(B)D-2
R286	(B)D-2
R287	(B)D-3
R289	(B)D-3
R291	(A)D-3
R293	(B)E-5
R294	(B)E-3
R295	(B)E-3
R296	(B)E-3
R297	(A)E-3
R298	(A)E-3
R299	(A)E-3
R301	(A)B-8
R302	(A)B-8
R303	(A)B-8
R304	(B)B-8
R305	(A)B-8
R307	(B)B-8
R308	(A)B-9
R309	(A)A-10
R310	(B)G-5
R311	(B)G-9
R312	(B)G-7
R313	(B)G-6
R314	(A)G-6
R315	(A)G-2
R316	(A)G-5
R317	(A)G-7
R318	(A)G-8
R319	(B)B-9
R320	(B)B-9
R321	(A)B-9
R327	(A)B-8
R328	(A)B-8
R329	(A)B-8
R330	(A)B-9
R331	(A)B-8
R333	(B)D-9
R334	(B)G-8
R336	(A)D-9
R400	(B)B-7
R401	(B)B-7
R402	(B)B-7
R403	(B)C-7
R404	(B)C-7
R405	(B)C-7
R406	(B)C-7
R407	(B)C-7
R408	(B)B-7
R409	(B)B-7
R410	(B)B-7
R411	(A)D-10
R412	(B)C-7
R413	(B)C-7
R414	(B)C-7
R417	(B)C-8
R418	(A)D-8
R419	(B)C-7
R420	(A)D-8
R421	(A)D-8
R422	(A)D-8
R423	(B)D-9
R424	(B)C-9
R425	(A)D-8
R426	(A)D-8
R427	(B)C-9
R428	(B)C-9
R429	(B)A-9
R430	(B)B-8
R434	(A)B-9
R436	(B)D-9
R437	(A)B-9
R439	(A)C-9
R440	(A)C-9
R441	(A)C-9
R442	(A)C-9
R443	(B)A-10
R444	(B)A-10
R445	(B)B-10
R446	(B)A-10
R447	(A)B-9
R448	(A)A-9
R449	(A)B-8
R450	(A)A-8
R451	(B)A-8
R452	(A)A-8
R453	(B)A-8
R454	(B)A-8
R455	(A)A-10
R456	(A)A-9
R458	(A)A-7
R459	(A)A-8
R460	(A)A-8
R461	(A)A-8
R462	(B)A-7
R463	(B)A-7
R464	(B)A-7
R465	(B)A-6
R466	(B)C-9
R467	(B)A-9
R468	(A)A-9
R469	(A)A-9
R471	(A)D-8
R472	(A)D-8
R473	(A)D-8
R474	(A)D-7
R475	(A)D-7
R476	(B)C-7
R477	(B)C-7
R478	(B)C-7
R479	(A)B-7
R481	(B)A-9
R482	(B)A-9
R501	(A)A-3
R502	(A)A-2
R503	(A)C-6
R505	(A)A-2
R506	(A)C-6
R507	(A)A-2
R511	(B)B-3
R512	(A)C-2
R513	(B)A-3
R514	(B)C-2
R515	(A)C-2
R516	(B)C-6
R517	(A)C-2
R519	(A)A-3
R522	(B)A-2
R523	(A)B-3
R526	(A)A-2
R527	(B)A-1
R528	(A)B-3
R529	(B)A-2
R531	(B)A-1
R532	(B)C-6
R533	(B)B-2
R537	(A)B-2
R556	(B)A-1
R557	(B)A-2
R558	(A)A-2
R601	(A)F-3
R603	(A)F-3
R604	(A)F-3
R605	(A)G-3
R606	(B)F-3
R607	(A)G-2
R608	(A)G-2
R609	(A)G-2
R610	(A)G-2
R611	(B)F-2
R612	(A)F-3
R613	(A)F-3
R614	(A)F-3
R615	(B)F-3
R616	(A)F-3
R618	(B)F-2
R619	(B)G-2
R620	(B)G-2
R621	(B)G-2
R623	(A)F-4
R628	(A)F-4
R629	(A)F-4
R630	(B)G-3
R631	(A)G-3
R632	(A)F-3
R701	(B)G-5
R702	(B)G-5
R703	(B)F-5
R704	(B)G-5
R706	(A)G-6
R707	(A)G-6
R708	(B)F-9
R709	(A)F-6
R710	(A)F-6
R719	(B)E-8
R720	(B)E-8
R721	(B)E-8
R722	(B)F-9
R723	(B)F-9
R724	(B)E-9
R725	(B)E-6
R726	(B)G-7
R727	(B)G-7
R728	(B)G-7
R729	(B)G-6
R730	(B)F-7
R732	(A)F-6
R733	(A)F-6
R734	(A)F-6
R735	(A)F-6
R737	(B)F-9
R740	(A)G-5
R741	(A)G-5
R742	(A)G-5
R743	(A)G-5
R744	(A)G-5
R745	(A)G-5
R751	(A)E-9
R756	(B)E-8
R757	(A)E-8
R760	(A)E-8
R761	(A)E-8
R763	(A)E-6
R775	(A)E-8
S301	(A)G-1
S302	(A)G-3
S303	(A)G-6
S304	(A)G-9
S305	(A)G-5
S306	(A)G-8
S307	(A)G-4
X400	(A)C-8
X701	(B)G-6

VC-167 (MAIN) PRINTED WIRING BOARD

— Ref. No. VC-167 Board; 1,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

VC-167 BOARD (SIDE A)



PAUSE
FF
PLAY
REW
STOP
S304
S306
S303
S305
S307
G
F
E
D
C
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A
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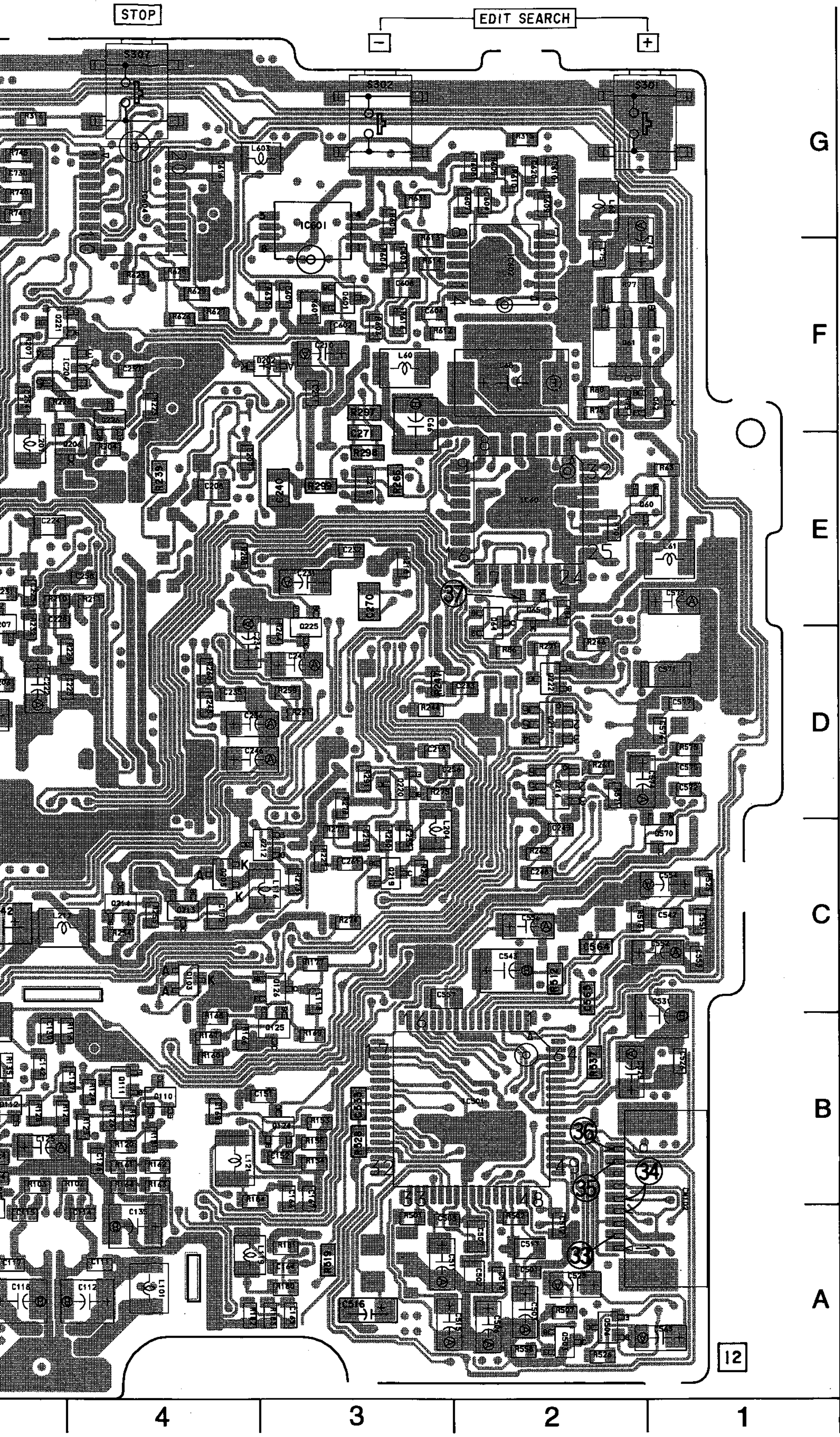
4
VC-167
X400
39
40
41

gram isn't mounted in this model.

VC-167 BOARD (SIDE B)


STOP
EDIT SEARCH
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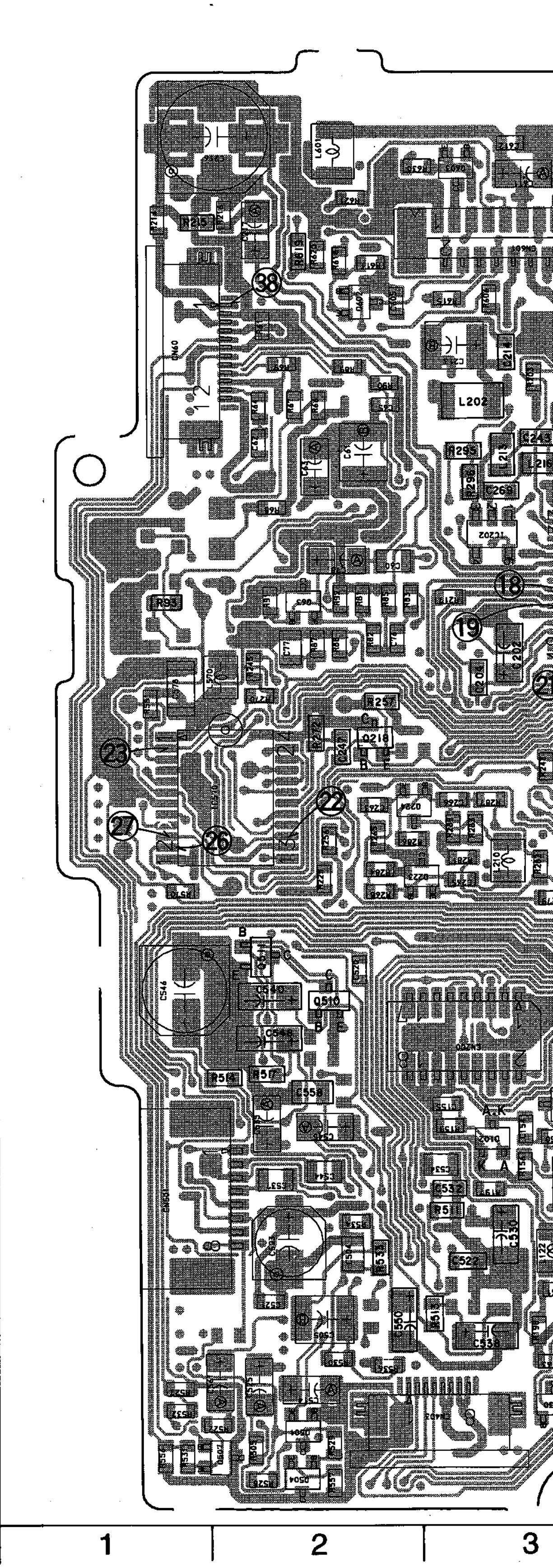
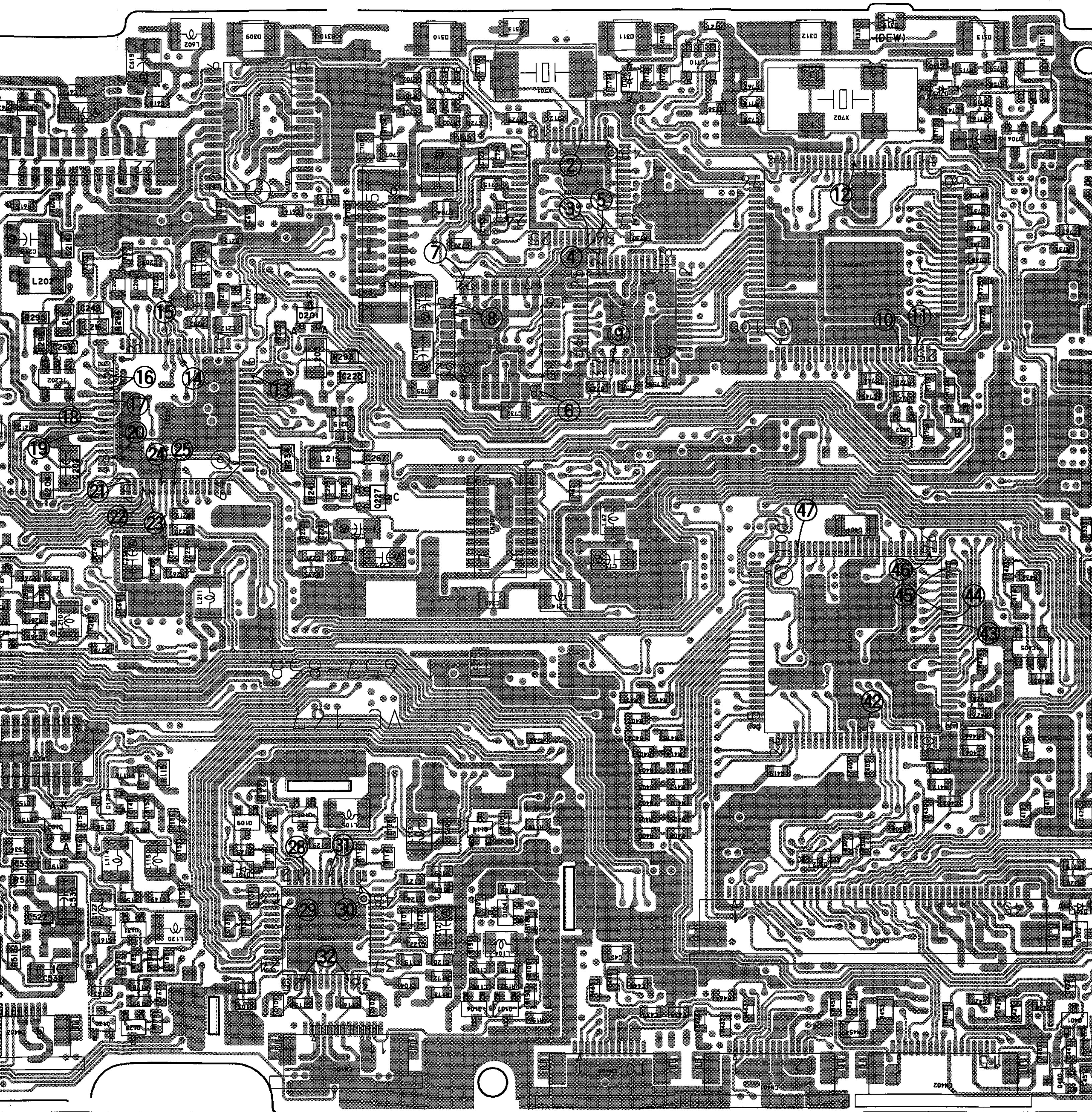
+
S307
S302
S301
IC601
G
F
E
D
C
B
A
12
4
3
2
1


L202
IC202
Q218
Q510
C544
C548
C558
R514
R93
1
2
3

B)



D309
D310
D311
D312
D313
(DEW)
L602
X701
X702
L202
D201
L203
R293
C220
R299
C249
L215
C267
Q227
②
③
④
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SECTION 5

REPAIR PARTS LIST

5-1. EXPLODED VIEWS

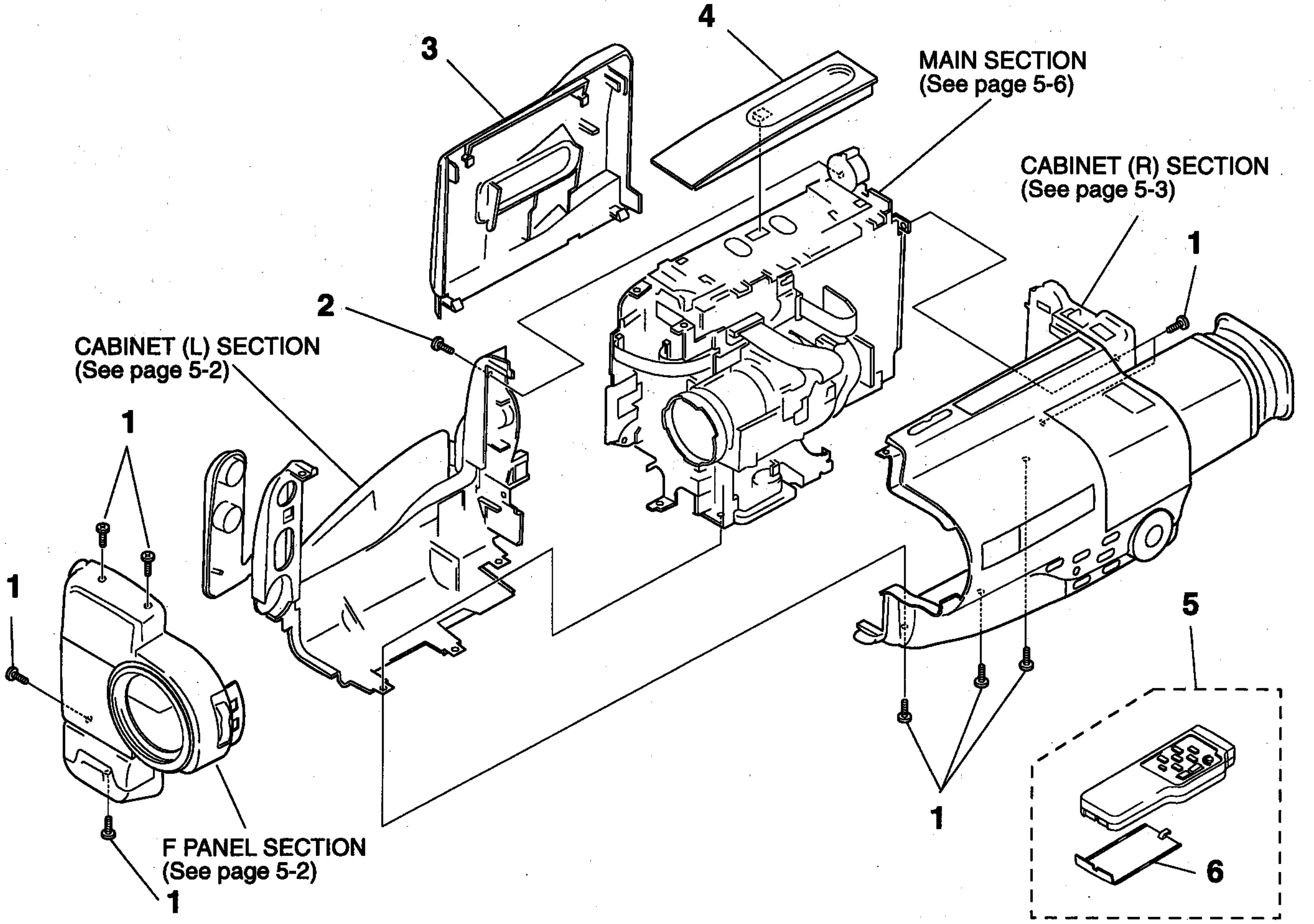
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifie.

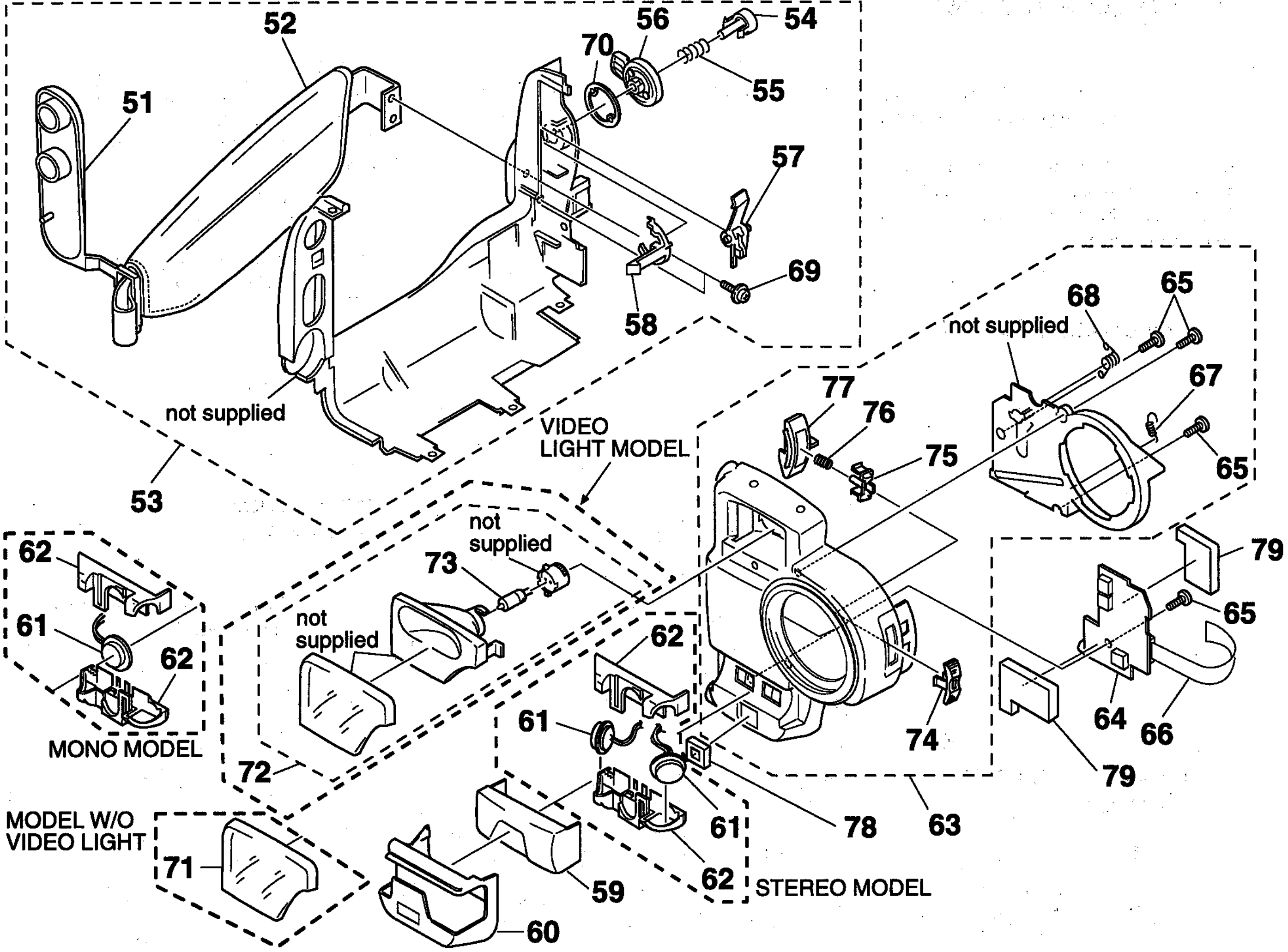
5-1-1. OVERALL SECTION


4
3
MAIN SECTION
(See page 5-6)
CABINET (R) SECTION
(See page 5-3)
1
2
CABINET (L) SECTION
(See page 5-2)
1
1
5
1
F PANEL SECTION
(See page 5-2)
6
1

Ref. No.	Part No.	Description	Remarks
1	3-962-826-01	SCREW (2X4)	
2	3-713-786-21	SCREW (M2X3)	
3	X-3945-446-1	LID ASSY, CASSETTE	

Ref. No.	Part No.	Description	Remarks
4	3-965-896-01	LID, LS	
5	1-473-342-11	REMOTE COMMANDER (RMT-713)	
6	3-958-131-01	COVER, BATTERY REMOCON	

5-1-2. CABINET (L), F PANEL SECTION



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56
54
70
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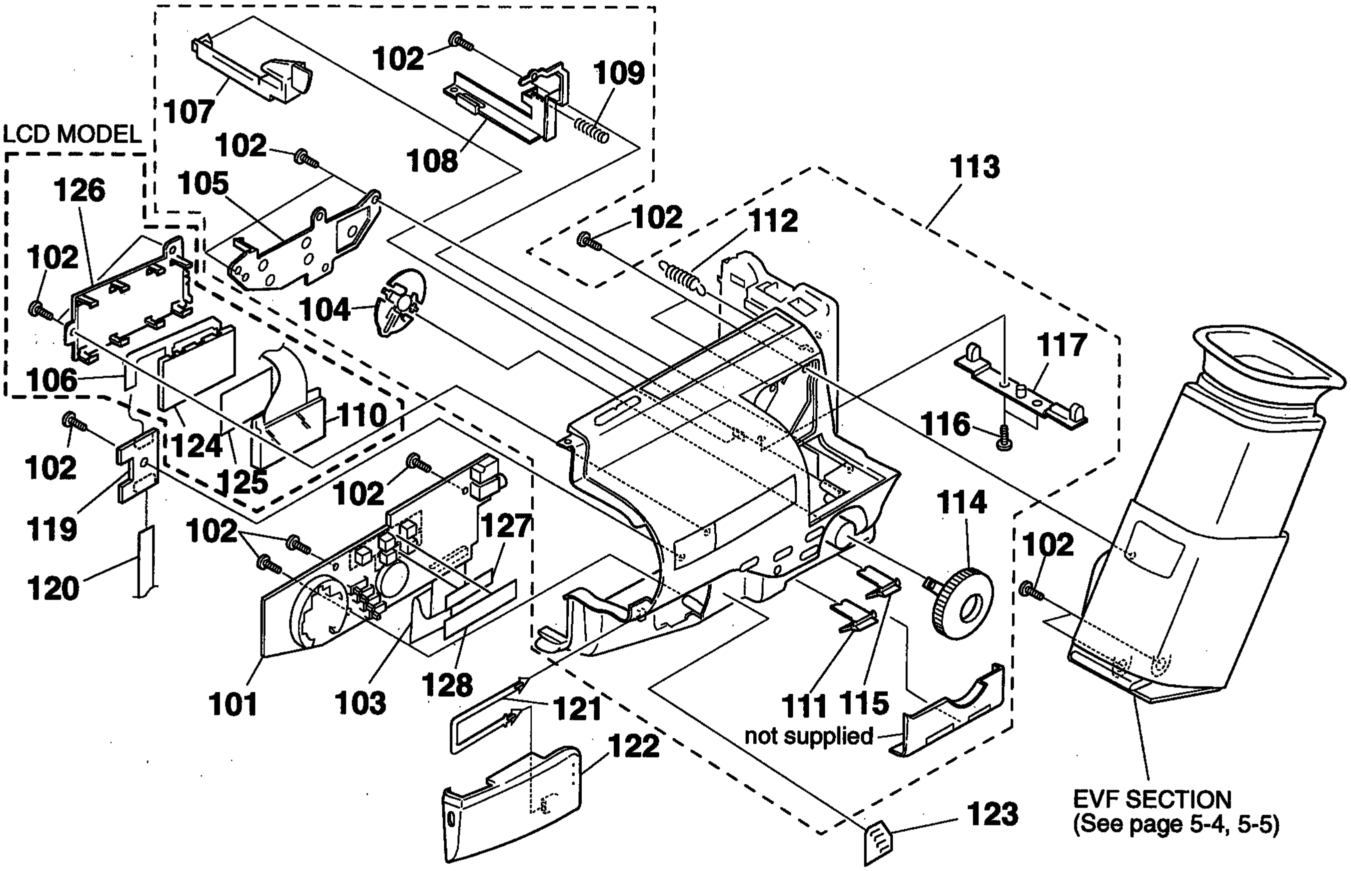
51
57
69
58
not supplied
53
68
65
not supplied
67
77
76
75
65
VIDEO
LIGHT MODEL
62
61
62
MONO MODEL
73
not
supplied
not
supplied
72
79
65
62
61
64
66
74
79
61
78
63
MODEL W/O
VIDEO LIGHT
71
59
62
STEREO MODEL
60

Ref. No.	Part No.	Description	Remarks
51	3-965-888-01	COVER, JACK	
52	3-736-807-01	BELT, GRIP	
53	X-3945-455-1	CABINET (L) ASSY	(TR514/TR614/TR714/TR814)
53	X-3945-896-1	CABINET (L) ASSY	(TR78/TR88/TR98/TR99/TR590)
54	3-965-844-01	BUTTON, S/S	
55	3-965-830-01	SPRING, COMPRESSION	
56	3-942-985-01	KNOB, STAND-BY	
57	3-965-870-01	PLATE, S/S JOINT	
58	3-965-869-01	HOLDER, KNOB	
59	3-968-958-01	GRILLE, MICROPHONE	(TR514/TR614/TR714/TR814)
59	3-968-975-01	GRILLE (S), MICROPHONE	(TR78/TR88/TR98/TR99/TR590)
60	X-3945-954-1	COVER ASSY, MICROPHONE	(TR514/TR614/TR714/TR814)
60	X-3945-956-1	COVER ASSY (S), MICROPHONE	(TR78/TR88/TR98/TR99/TR590)
61	1-542-259-11	MICROPHONE, CAP	
62	3-965-861-01	HOLDER, MICROPHONE	
63	X-3945-951-1	PANEL ASSY, F (TR78/TR88/TR98)	
63	X-3945-953-1	PANEL ASSY, F	(TR514/TR590 /TR614/TR714/TR814)
63	X-3946-186-1	PANEL ASSY, F (TR99)	
64	A-7072-506-A	MA-265 BOARD, COMPLETE	(TR514/TR614/TR714/TR814)
64	A-7072-602-A	MA-265 BOARD,COMPLETE	(TR78/TR88/TR98/TR99/TR590)
65	3-719-601-01	SCREW (B2X5), TAPPING	
66	1-777-088-11	CABLE, FLEXIBLE FLAT 8P	
67	3-307-378-11	SPRING, TENSION	
68	3-961-823-01	SPRING, L COVER	
69	3-669-480-21	+ PTPWH 2	
70	3-736-364-01	SPRING	
72	3-968-954-01	PLATE, F ORNAMENTAL	(EXCEPT TR78/TR88/TR98)
72	1-517-530-11	LIGHT, VIDEO (TR78/TR88/TR98)	
73	1-517-531-11	LAMP (TR78/TR88/TR98)	
74	3-968-950-01	KNOB, POWER	
75	3-968-952-01	BUTTON, POWER	
76	3-303-973-01	SPRING, COMPRESSION	
77	3-968-951-01	HOLDER, POWER	
* 78	3-970-159-01	CUSHION, REMOTE CONTROL	
* 79	3-970-158-01	CUSHION, MA	

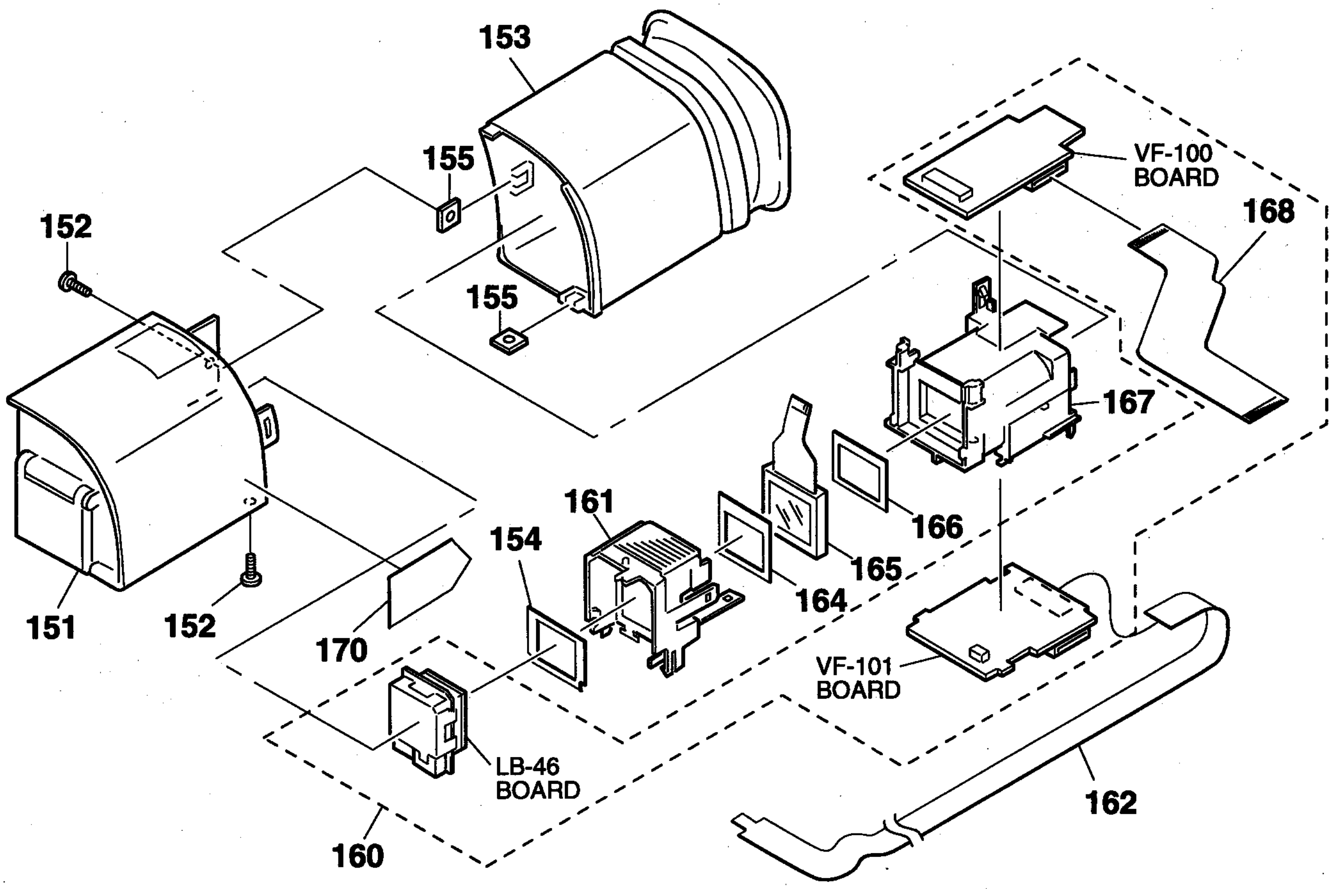
5-1-3. CABINET (R) SECTION



Ref. No.	Part No.	Description	Remarks
101	A-7092-781-A	CF-43 BOARD, COMPLETE (TR814)	
101	A-7092-783-A	CF-43 BOARD, COMPLETE (TR714)	
101	A-7092-784-A	CF-43 BOARD, COMPLETE (TR514/TR614)	
101	A-7092-791-A	CF-43 BOARD, COMPLETE (TR590)	
101	A-7092-837-A	CF-43 BOARD, COMPLETE (TR99)	
101	A-7092-840-A	CF-43 BOARD, COMPLETE (TR88/TR98)	
101	A-7092-858-A	CF-43 BOARD, COMPLETE (TR78)	
102	3-719-601-01	SCREW (B2X5), TAPPING	
103	1-775-520-11	CABLE, FLEXIBLE FLAT 45P	
104	3-968-938-01	HOLDER, AE BUTTON	
105	3-968-935-01	CF BUTTON HOLDER	
106	1-660-437-11	FP-427 FLEXIBLE BOARD (TR99/TR590)	
107	3-965-879-01	SLIDER, BT	
108	3-968-926-01	HOLDER, BT	
109	3-965-846-01	SPRING, COMPRESSION	
110	1-801-215-11	DISPLAY PANEL, LIQUID CRYSTAL (TR99/TR590)	
111	3-968-940-11	BUTTON (3), SLIDE	
112	4-602-490-00	SPRING, TENSION	
113	X-3945-952-1	CABINET (R) ASSY (TR814)	
113	X-3946-081-1	CABINET (R) ASSY (TR714)	
113	X-3946-082-1	CABINET (R) ASSY (TR514)	
113	X-3946-112-1	CABINET (R) ASSY (TR590)	
113	X-3946-164-1	CABINET (R) ASSY (TR99)	

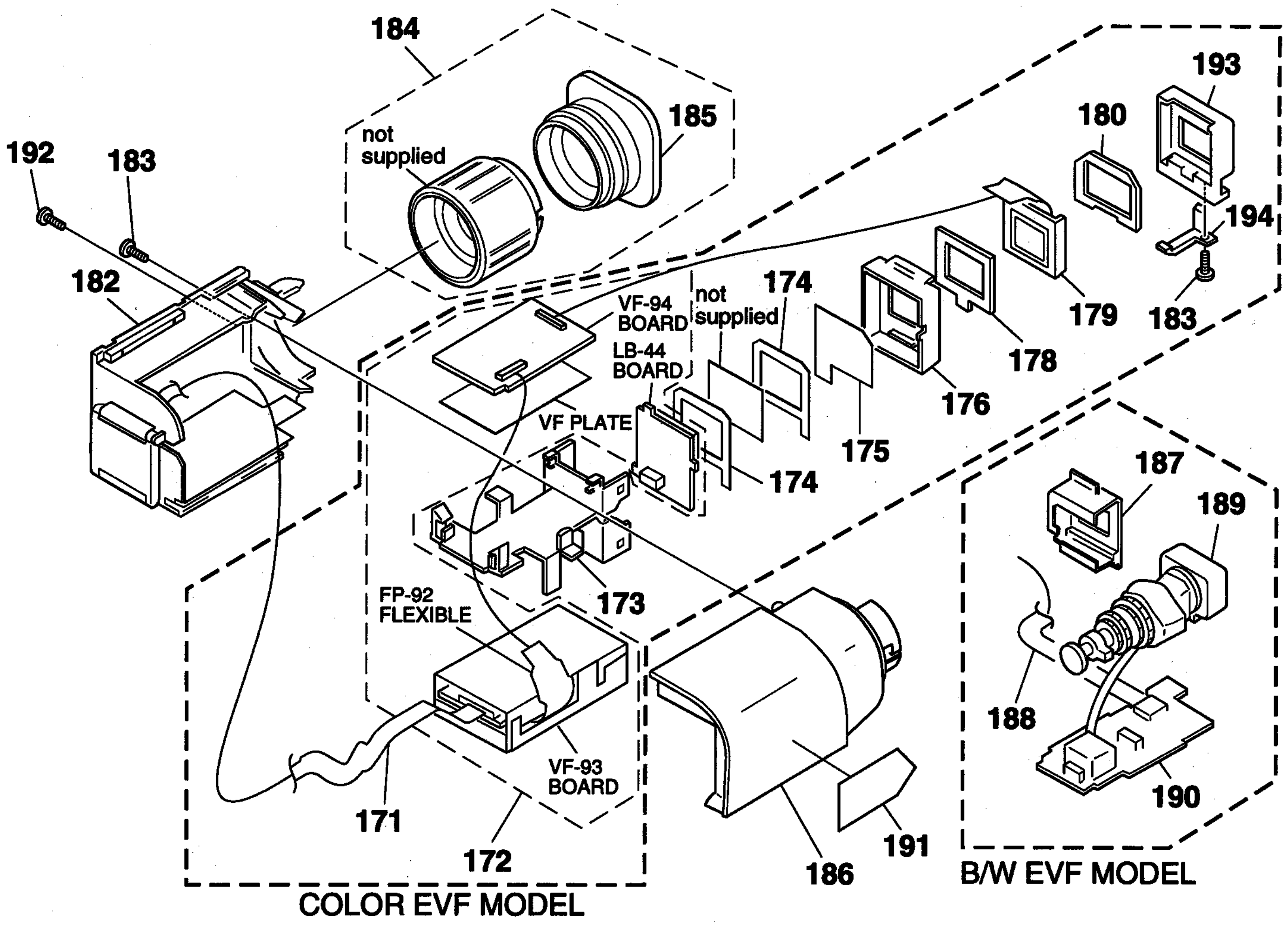
Ref. No.	Part No.	Description	Remarks
113	X-3946-165-1	CABINET (R) ASSY (TR98)	
113	X-3946-166-1	CABINET (R) ASSY (TR88)	
113	X-3946-167-1	CABINET (R) ASSY (TR78)	
113	X-3946-267-1	CABINET (R) ASSY (TR614)	
114	3-968-936-11	BUTTON, AE	
115	3-968-940-11	BUTTON (3), SLIDE (TR590)	
115	3-968-939-11	BUTTON (2), SLIDE(TR88/TR98/TR99/TR814)	
116	3-966-178-01	SCREW (1.7)	
117	3-965-854-01	CLAW, BT LOCK	
119	A-7072-507-A	PW-113 BOARD, COMPLETE (TR78/TR88/TR98/TR514/TR614/TR714/TR814)	
119	A-7072-603-A	PW-113 BOARD, COMPLETE (TR99/TR590)	
120	1-776-866-11	CABLE, FLEXIBLE FLAT 6P	
121	3-965-842-01	HINGE, LITHIUM LID	
122	3-968-932-11	LID, LITHIUM	
123	3-968-927-01	SHEET, SWITCH ORNAMENTAL (TR88/TR98/TR99/TR714/TR814)	
123	3-968-927-11	SHEET, SWITCH ORNAMENTAL (TR78/TR814/TR614)	
123	3-968-927-21	SHEET, SWITCH ORNANENTAL (TR590)	
124	1-517-529-11	LIGHT, BACK (TR99/TR590)	
125	3-969-988-01	ILLUMINATOR (TR99/TR590)	
126	3-968-976-01	HOLDER, LCD (TR99/TR590)	
* 127	3-970-152-01	SHEET, MUFFLE	
* 128	3-970-392-01	SHEET B, MUFFLE	

5-1-4. EVF SECTION (SOLAR COLOR EVF MODEL)


153
155
152
VF-100 BOARD
168
155
167
161
166
154
165
164
151
152
170
VF-101 BOARD
LB-46 BOARD
162
160

Ref. No.	Part No.	Description	Remarks
151	X-3945-971-1	CABINET (FRONT) ASSY, EVF (TR98/TR590/TR714)	
151	X-3945-957-1	CABINET (FRONT) ASSY, EVF (TR99)	
152	3-719-381-01	SCREW (M2X4)	
153	X-3945-958-1	CABINET (REAR) ASSY, EVF	
* 154	3-969-923-01	CUSHION, BACK LIGHT	
155	3-718-233-01	NUT, PLATE	
160	A-7092-696-A	EVF COMPLETE, SOLAR(SERVICE)	
161	X-3945-983-1	HOLDER ASSY, PRISM	
162	1-660-438-11	FP-425 FLEXIBLE BOARD	
* 164	3-969-924-01	CUSHION (Y), LCD	
165	8-753-015-20	LCX005BK-1	
* 166	3-960-302-01	CUSHION (1), LCD	
167	X-3945-959-1	LENS ASSY, VF	
168	1-656-480-11	FP-291 FLEXIBLE BOARD	
170	3-967-314-01	STICKER (SS), BODY (TR98/TR99/TR590)	

5-1-5. EVF SECTION (COLOR and B/W EVF MODEL)

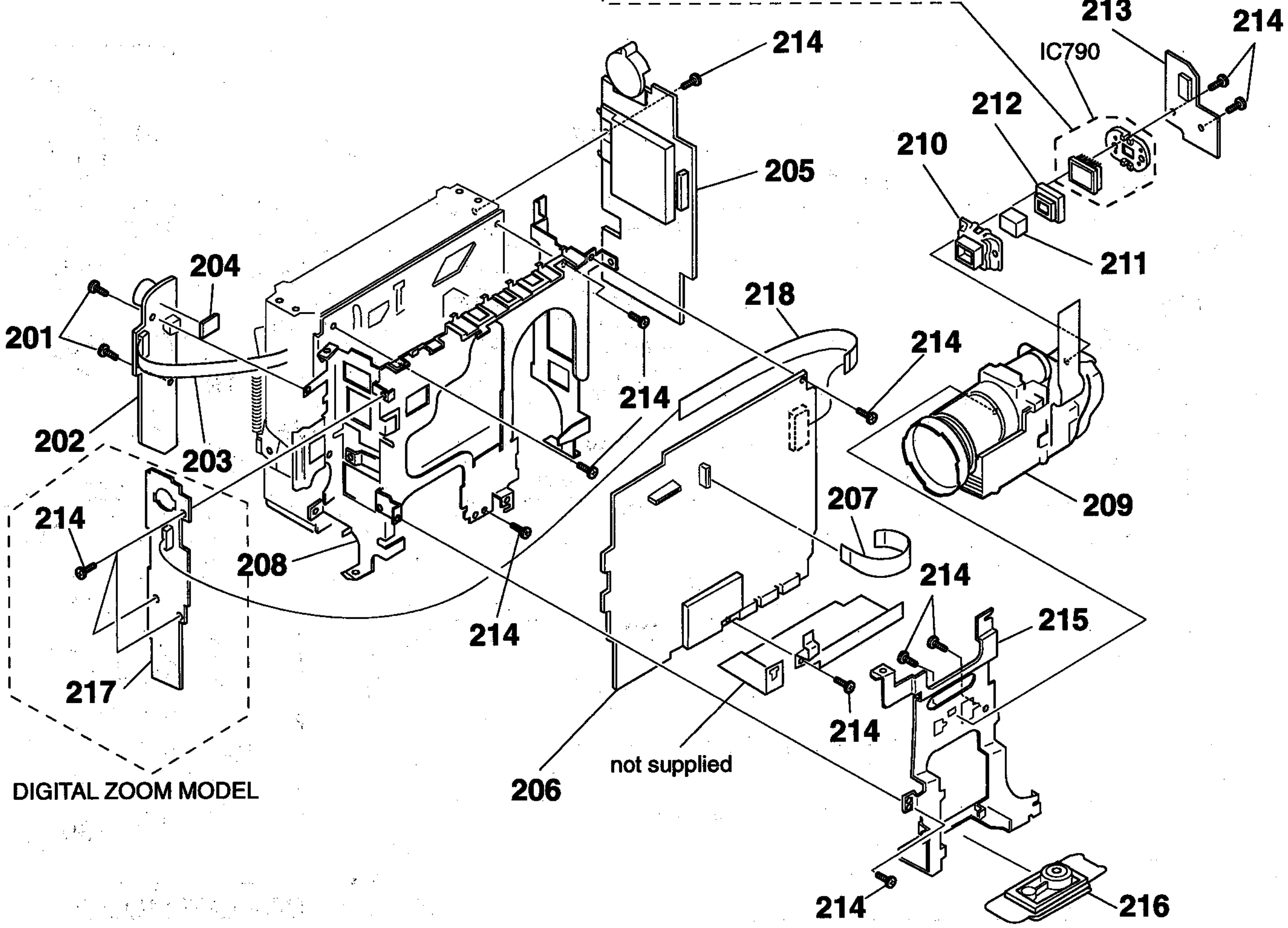

184
not supplied
185
192
183
182
193
180
194
VF-94 BOARD
not supplied
174
LB-44 BOARD
179
183
178
176
VF PLATE
175
174
187
189
173
FP-92 FLEXIBLE
188
VF-93 BOARD
171
172
190
191
186
COLOR EVF MODEL
B/W EVF MODEL

Ref. No.	Part No.	Description	Remarks
171	1-658-344-11	FP-282 BOARD (TR614)	
172	A-7092-688-A	COMPLETE PCB, EVF (TR614)	
173	3-966-393-01	HOLDER (C), LCD (TR614)	
* 174	3-958-967-01	CUSHION (3) (TR614)	
175	3-958-965-01	PLATE, CONDENCE, BL (TR614)	
176	3-966-395-01	COVER, BL (TR614)	
* 178	3-958-964-01	CUSHION (2) (TR614)	
179	8-753-015-20	LCX005BK-1 (TR614)	
* 180	3-958-963-01	CUSHION (1) (TR614)	
182	X-3945-456-1	CABINET (L) ASSY, EVF	
183	3-948-339-01	SCREW, TAPPING	
184	X-3945-448-1	FINDER ASSY (TR78/TR88/TR514/TR814)	
184	X-3945-544-1	FINDER ASSY (C) (TR614)	
185	3-963-160-01	CUP (DM), EYE	
186	3-965-899-01	CABINET (R), EVF	
187	X-3945-445-1	COVER ASSY, CRT (TR78/TR88/TR514/TR814)	
188	1-657-866-11	FP-283 FLEXIBLE BOARD (TR78/TR88/TR514/TR814)	
⚠189	1-452-673-31	CRT ASSY (M01KXX90WB) (TR78/TR88/TR514/TR814)	
190	A-7072-362-A	VF-102 BOARD, COMPLETE (TR78/TR88/TR514/TR814)	
191	3-967-314-01	STICKER (SS), BODY (TR88/TR814)	
192	3-968-334-01	SCREW, F LOCK	
193	3-966-394-01	COVER (C), LCD (TR614)	
194	3-958-969-01	CHIP (LCD), TALLY (TR614)	

Note:	**Note:**
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

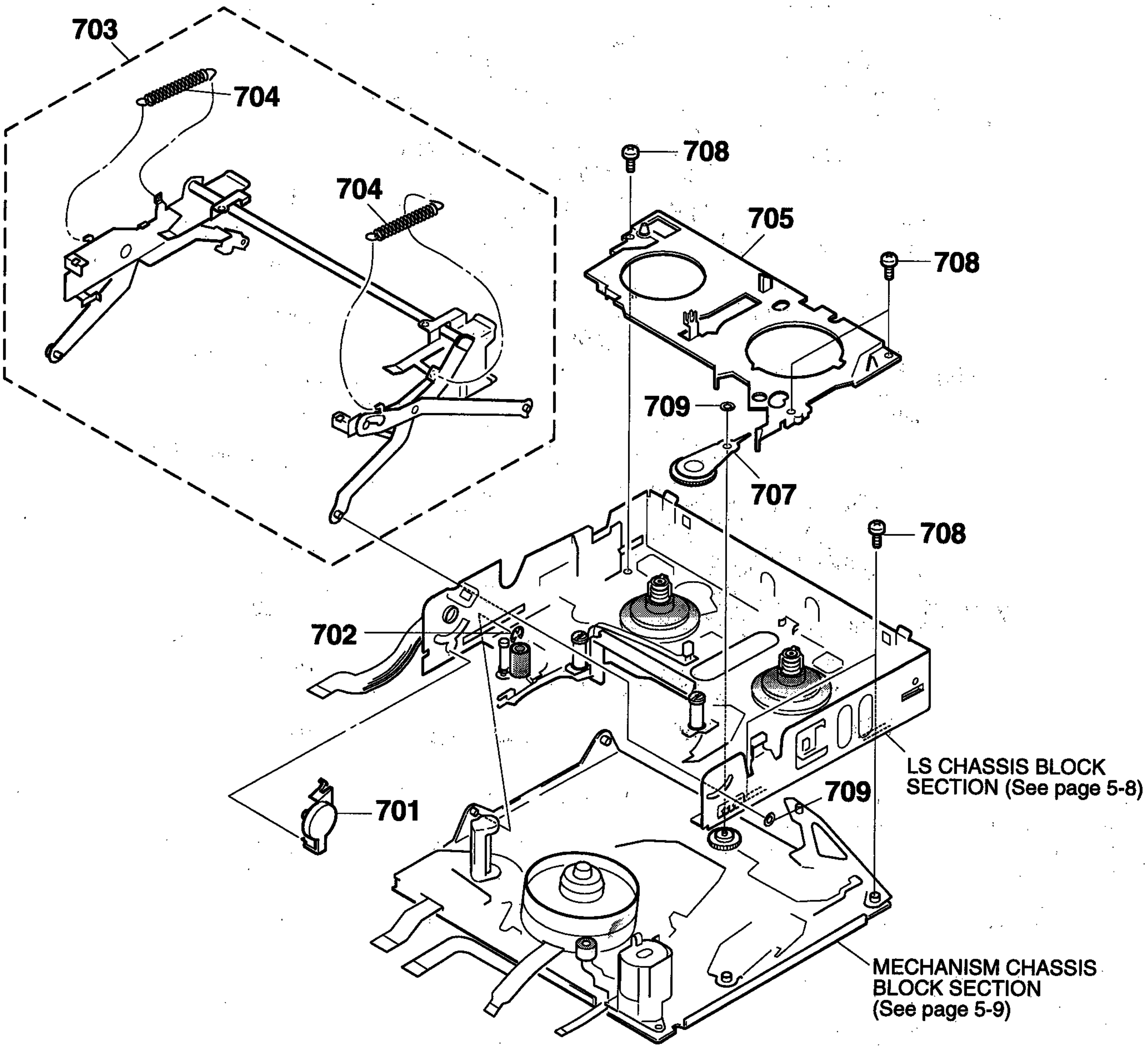
5-1-6. MAIN SECTION

*Be sure to read "Precautions for Replacement of CCD Imager" on page 4-13 when changing the CCD imager.



Ref. No.	Part No.	Description	Remarks
201	3-962-826-01	SCREW (2X4)	
202	A-7072-501-A	JK-145 BOARD, COMPLETE	(TR514/TR614/TR714/TR814)
202	A-7072-600-A	JK-145 BOARD, COMPLETE	(TR99/TR590)
202	A-7072-651-A	JK-145 BOARD, COMPLETE	(TR78/TR88/TR98)
203	1-660-436-11	FP-403 FLEXIBLE BOARD	
204	9-911-863-XX	INSULATOR	(TR78/TR88/TR98)
205	A-7092-575-A	DD-80 BOARD, COMPLETE	(TR514/TR814)
205	A-7092-619-A	DD-80 BOARD, COMPLETE	(TR99/TR590/TR614/TR714)
205	A-7092-839-A	DD-80 BOARD, COMPLETE	(TR98)
205	A-7092-856-A	DD-80 BOARD, COMPLETE	(TR78/TR88)
206	A-7092-574-A	VC-167 BOARD, COMPLETE	(TR514)
206	A-7092-618-A	VC-167 BOARD, COMPLETE	(TR614)
206	A-7092-780-A	VC-167 BOARD, COMPLETE	(TR814)
206	A-7092-782-A	VC-167 BOARD, COMPLETE	(TR714)
206	A-7092-790-A	VC-167 BOARD, COMPLETE	(TR99/TR590)
206	A-7092-838-A	VC-167 BOARD, COMPLETE	(TR98)
206	A-7092-855-A	VC-167 BOARD, COMPLETE	(TR78/TR88)
207	1-775-516-11	CABLE, FLEXIBLE FLAT 16P	
* 208	3-965-897-01	FRAME, MD	
209	1-547-739-21	LENS, ZOOM (VCL-5412WB)	
210	3-946-856-01	ADAPTOR (H), CCD FITTING	
211	1-547-558-21	FILTER BLOCK, OPTICAL	(TR78/TR514/TR614/TR714)
211	1-547-735-51	FILTER BLOCK, OPTICAL	(TR88/TR98/TR99/TR590/TR814)
212	3-946-857-01	RUBBER (S),SEAL	(TR78/TR514/TR614/TR714)
212	3-960-149-01	RUBBER (3), SEAL	(TR88/TR98/TR99/TR590/TR814)
213	A-7072-503-A	CD-156 BOARD, COMPLETE	(TR88/TR98/TR99/TR590/TR814)
213	A-7072-590-A	CD-156 BOARD, COMPLETE	(TR78/TR514/TR614/TR714)
214	3-947-268-01	2, +B TAPPIN P TAIT	
* 215	3-965-898-11	FRAME, LENS	
216	3-965-871-01	SCREW (for TRIPOD)	
217	A-7072-504-A	TZ-5 BOARD, COMPLETE	(TR99/TR590/TR814)
217	A-7072-591-A	TZ-5 BOARD, COMPLETE	(TR714)
217	A-7072-650-A	TZ-5 BOARD, COMPLETE	(TR88/TR98)
217	A-7072-673-A	TZ-5 BOARD, COMPLETE	(TR78)
218	1-660-435-11	FP-402 FLEXIBLE BOARD	(TR78/TR88/TR98/TR99/TR590/TR714/TR814)
IC790	A-7030-368-A	CCD BLOCK ASSY(ICX054AK-12)(CCD IMAGER)	(TR78/TR514/TR614/TR714)
IC790	A-7030-373-A	CCD BLOCK ASSY(ICX059AK-42)(CCD IMAGER)	(TR88/TR98/TR99/TR590/TR814)

5-1-7. CASSETTE COMPARTMENT BLOCK SECTION



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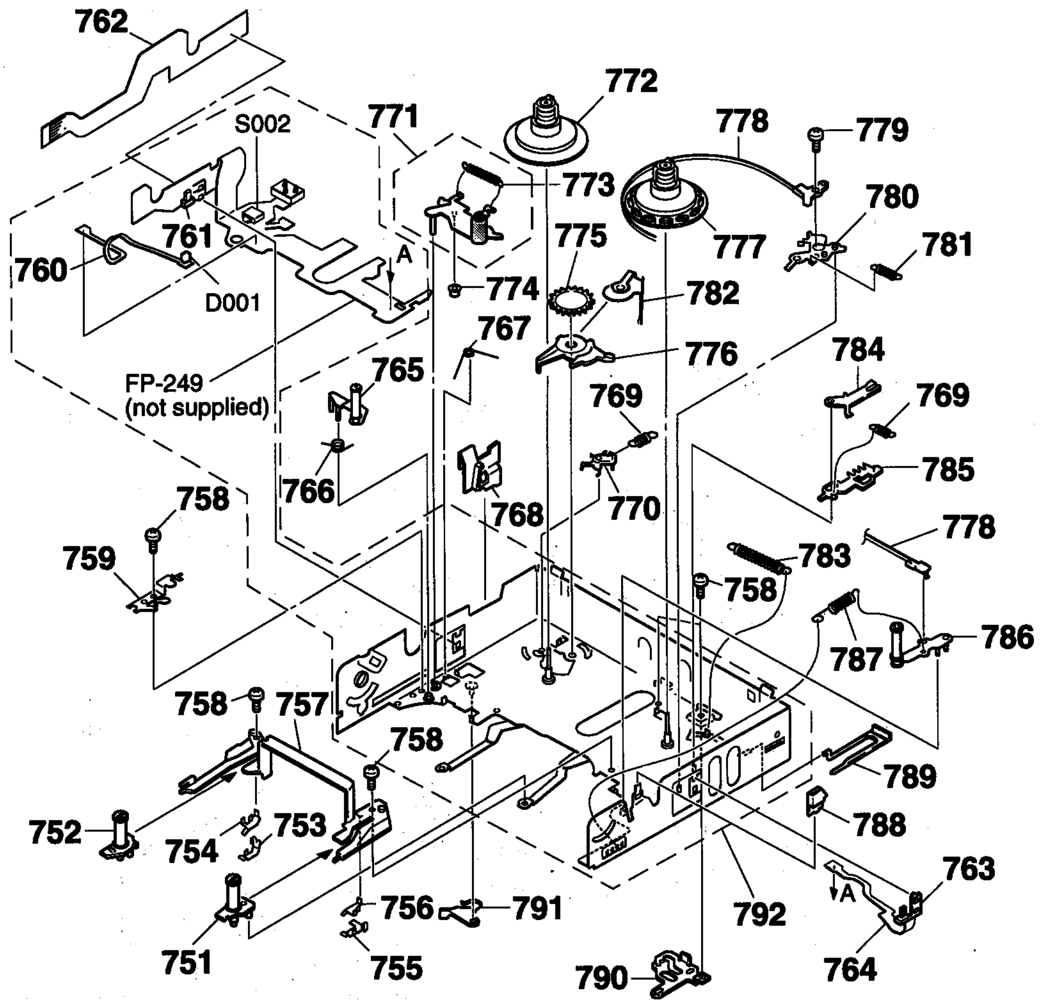
701
LS CHASSIS BLOCK SECTION (See page 5-8)
MECHANISM CHASSIS BLOCK SECTION (See page 5-9)

Ref. No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY	
702	7-624-102-04	STOP RING 1.5, TYPE -E	
703	X-3945-400-1	CASSETTE COMPARTMENT ASSY	
704	3-965-587-01	SPRING, TENSION	
705	3-965-584-01	RETAINER, GOOSENECK	
707	X-3945-399-1	GEAR ASSY, GOOSENECK	
708	3-947-503-01	SCREW (M1.4X2.5)	
709	3-331-007-21	WASHER	

5-1-8. LS CHASSIS BLOCK SECTION


762
772
S002
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A
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D001
782
767
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784
FP-249
(not supplied)
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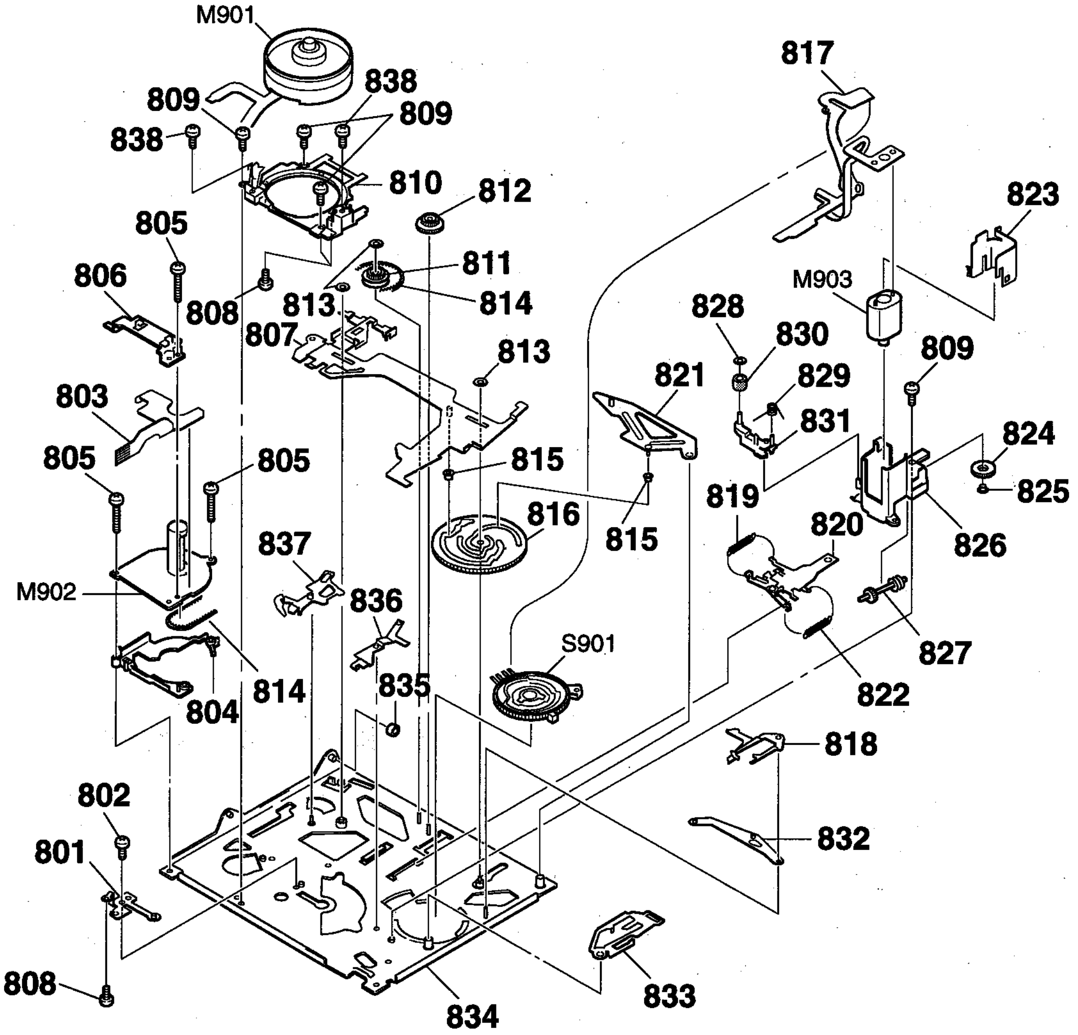
764

Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-A	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER (T), SENSOR	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER (S), SENSOR	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING, TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-01	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-01	RATCHET, T	
771	X-3945-394-1	ARM ASSY, PINCH	
772	X-3945-398-1	DECK ASSY, REEL, T	
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING, TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-A	CHASSIS (S1) ASSY, LS	
D001	8-719-988-42	DIODE GL453S	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	

5-1-9. MECHANISM CHASSIS BLOCK SECTION


M901
817
809
838
809
838
810
812
823
805
806
811
808
813
814
828
M903
830
807
813
809
821
829
803
831
824
805
805
815
825
819
816
837
820
815
826
M902
836
827
S901
835
814
822
804
818
802
832
801
808
833
834

Ref. No.	Part No.	Description	Remarks
801	3-965-525-01	GROUND, SHAFT	
802	3-965-550-02	SCREW (M1.7X1.6)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-965-545-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4 X 6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	X-3945-387-1	SLIDER ASSY, M	
808	3-965-588-01	SCREW (M1.4)	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING, TENSION	
820	X-3945-388-1	SLIDER ASSY, GL	
821	3-965-532-01	ARM, LS	
822	3-965-535-01	SPRING, TENSION (SILVER)	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING, TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
835	3-965-526-01	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
838	3-966-819-01	SCREW +P1.4X3	
M901	A-7048-804-A	DRUM BLOCK ASSY(DGH-0C1A-R)	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

SECTION 6

ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6-28.

6-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT

1-1-1. List of service tools

Oscilloscope	Regulated power supply	Vectorscope	Pattern generator
Adjustment screw driver	Color monitor	Digital voltmeter	

Ref.No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Siemens star	J-6080-875-A	For checking the flange back
J-6	Adjustment remote commander(RM-95 upgraded) Note	J-6082-053-B	
J-7	Multi CPC	J-6082-311-A	For video section adjustment (VC-167 board CN002)

Note : If the microprocessor IC in the adjusting remote commander is not the new microprocessor (UPD7503G-C56-12), the pages cannot be switched.
In this case, replace with the new microprocessor (8-759-148-35).

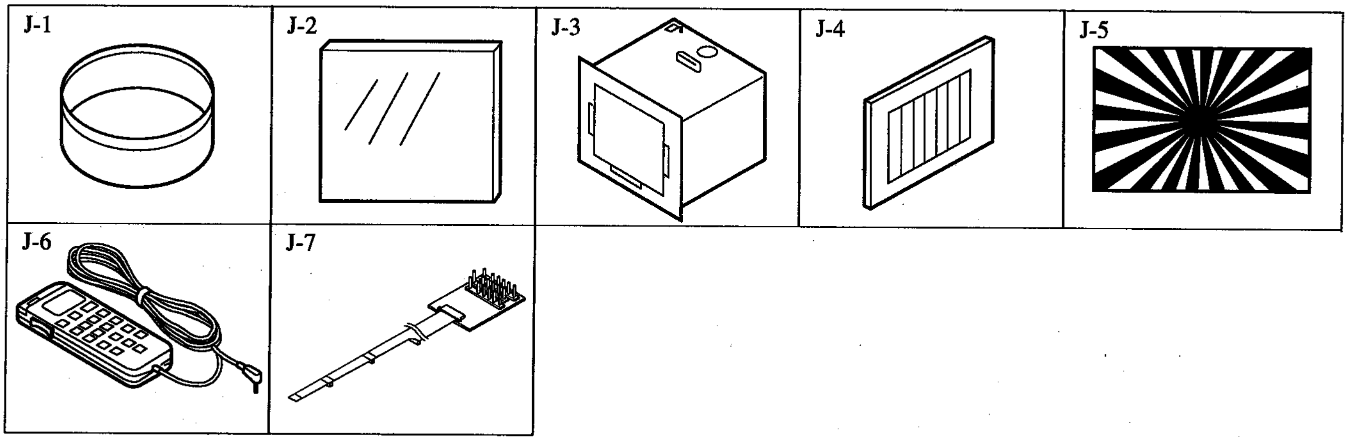


Fig.6-1-1.

1-1-2. Precautions

1. Switch settings

Adjust the switches to the following positions without loading the cassette tape unless otherwise specified.

1) Camera/video power switch
   Operation switch block ....Camera
2) PROGRAM AE switch (CF-43 board S489)................AUTO
3) STEADY SHOT switch (CF-43 board S486)...................OFF
4) D ZOOM switch (CF-43 board S300)..............................OFF
5) REC MODE switch (CF-43 board S483)............................SP

2. Adjustment sequence

Adjust in the given order.

3. Subject

1) Set the camera and pattern box as shown in Fig. 6-1-2.
2) Color bar chart (Standard picture frame)

- Adjust the picture frame as shown in Fig. 6-1-3.
- Adjust camera zooming and direction until the camera output waveform on the oscilloscope shown in Fig. 6-1-3 (a) and the color picture on the monitor TV shown in Fig. 6-1-3 (b) have been acquired.
- Maintain this setup until adjustment is complete.

3) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box and adjust the camera setup until the white pattern picture frame is the same size and same position as the color bar chart (the standard picture frame).

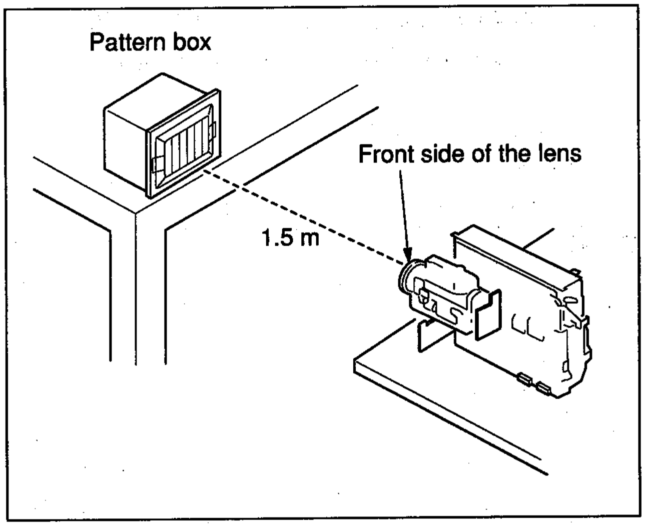

Pattern box
Front side of the lens
1.5 m

Fig. 6-1-2

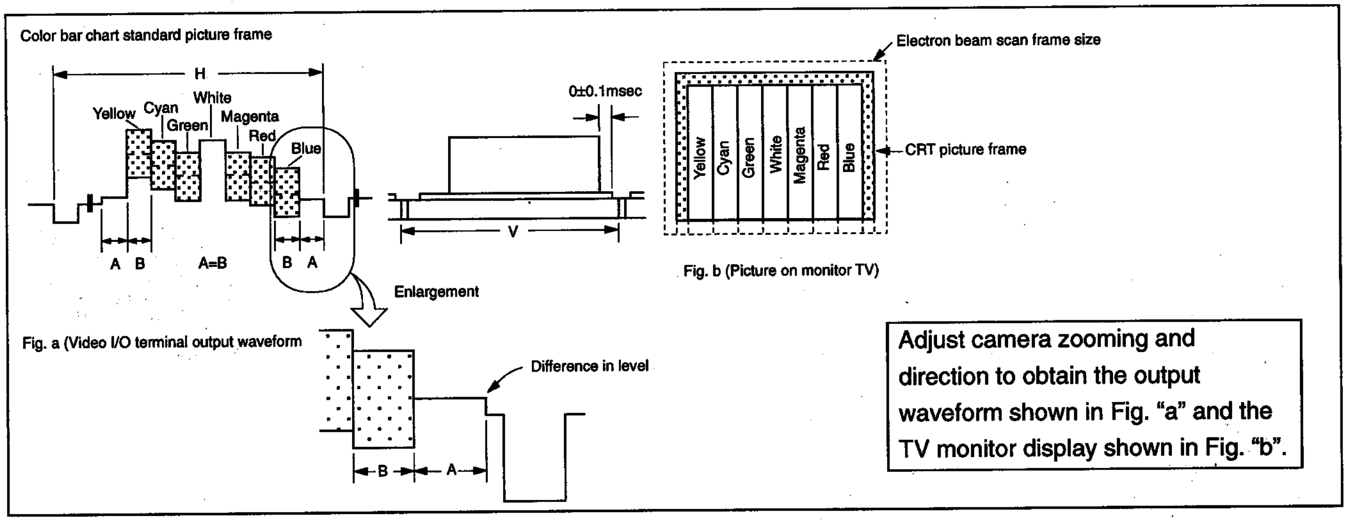

Color bar chart standard picture frame
H
Yellow
Cyan
White
Green
Magenta
Red
Blue
A B
A=B
B A
0±0.1msec
V
Enlargement
Difference in level
B
A
Electron beam scan frame size
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame

Fig. a (Video I/O terminal output waveform

Fig. b (Picture on monitor TV)

Adjust camera zooming and direction to obtain the output waveform shown in Fig. "a" and the TV monitor display shown in Fig. "b".

Fig. 6-1-3

4) Chart for flange back adjustment
   Join together a piece of white A0 size paper (1189 mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 6-1-4.

Note : Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

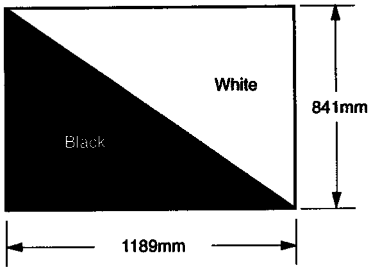

White
Black
841mm
1189mm

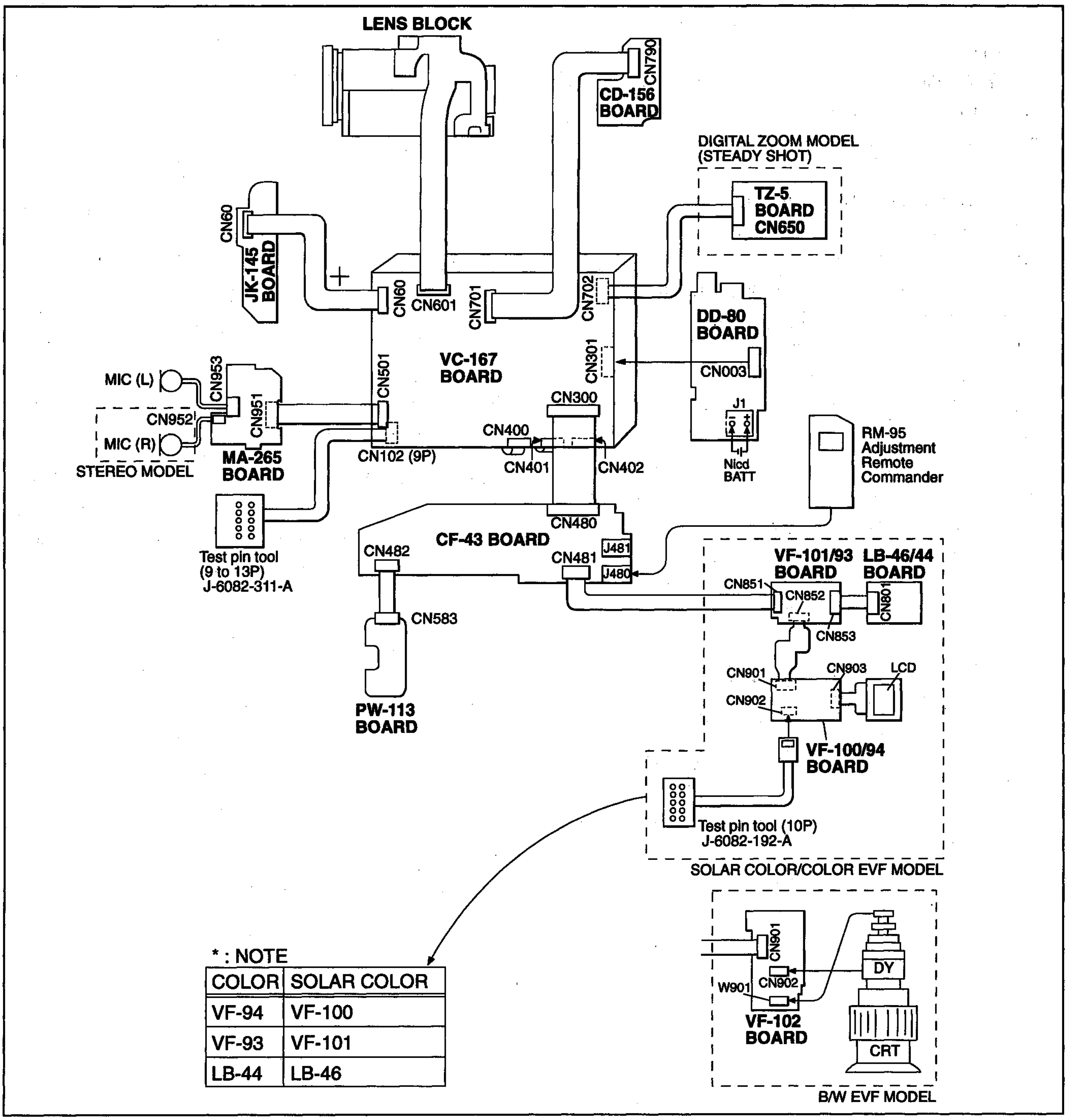
Fig. 6-1-4

1-1-3. Preparations

Note 1: Refer to "2. Disassembly" for details of how to remove the cabinet and the respective boards.

Note 2: Removal of the lens block and VC-167 board is not necessary if only adjustments are to be made.

1) Connect the adjustment equipment as shown in Fig. 6-1-5.


LENS BLOCK
CN790
CD-156 BOARD
DIGITAL ZOOM MODEL (STEADY SHOT)
TZ-5 BOARD CN650
CN60
JK-145 BOARD
CN60
CN601
CN701
CN702
VC-167 BOARD
CN501
CN301
DD-80 BOARD
CN003
J1
Nicd BATT
MIC (L)
CN953
CN952
CN951
MIC (R)
STEREO MODEL
MA-265 BOARD
CN300
CN400
CN102 (9P)
CN401
CN402
RM-95 Adjustment Remote Commander
Test pin tool (9 to 13P) J-6082-311-A
CN480
CF-43 BOARD
CN482
CN481
J481
J480
VF-101/93 BOARD
LB-46/44 BOARD
CN851
CN852
CN801
CN853
CN583
PW-113 BOARD
CN901
CN903
LCD
CN902
VF-100/94 BOARD
Test pin tool (10P) J-6082-192-A
SOLAR COLOR/COLOR EVF MODEL
CN901
DY
W901
CN902
VF-102 BOARD
CRT
B/W EVF MODEL

*: NOTE

COLOR	SOLAR COLOR
VF-94	VF-100
VF-93	VF-101
LB-44	LB-46

Fig. 6-1-5.

1-1-4. Adjustment remote commander (RM-95 upgraded)

To perform adjustment, the adjustment data stored in the non-volatile memory must be rewritten using the adjustment remote commander (RM-95 upgraded).

The adjustment remote commander uses the remote commander signal line (LANC) to interactively communicate with the merchandise. The page, address and up/down command data are sent from the adjustment remote commander to the merchandise. In return, the page, address and data are sent to the adjustment remote commander from the merchandise.

1. Using the adjustment remote commander

1) Connect the adjustment remote commander to the LANC terminal (CF-43 board J480).
2) Set the NOR-ADJ (or HOLD) switch of the adjustment remote commander to the "ADJ" (or ON) (service) position.
   If the adjustment remote commander is correctly connected, the adjustment remote commander's LED will show the display as shown in Fig. 6-1-6.
3) Bit value discrimination
   It is necessary to discriminate between the bit values with the data displayed on the adjustment remote commander for all following items. Identify whether the bit value is '1' or '0' with the use of the following diagram.

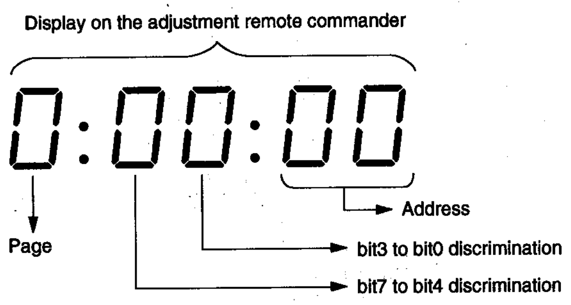

Display on the adjustment remote commander
0:00:00
Page
Address
bit3 to bit0 discrimination
bit7 to bit4 discrimination

Fig 6-1-6

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(C)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ	E(E)	1	1	1	0
	F(F)	1	1	1	1

(example) If "8E" is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the 'Ⓐ' column, and the bit values for bit3 to bit0 are shown in the 'Ⓑ' column.

4) The adjustment remote controller is operated as follows:

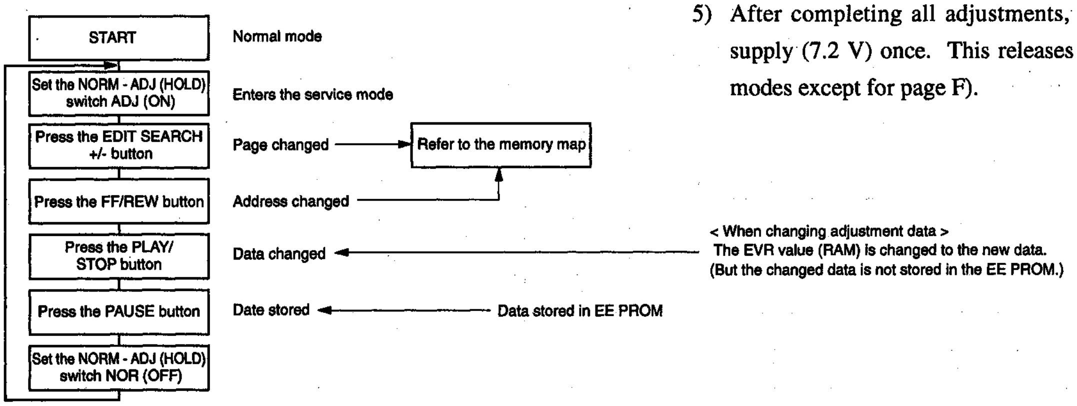
- Changing the page
  The pages increase when the EDIT SEARCH (+) button is pressed and decrease when the EDIT SEARCH (-) button is pressed. Altogether there are 16 pages from page "0" to page "F".

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD display	0	1	2	3	4	5	6	7	8	9	A	b	C	d	E	F
Decimal notation after conversion	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

- Changing the address
  The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. Altogether there are 256 addresses from address "00" to address "FF". Some addresses, which are not used during adjustment, do not appear.
- Taking note the already-stored adjustment data
  The previous adjustment can be erased if the adjustment remote commander is incorrectly handled. To prevent this, it is recommended that all the stored adjustment data be noted down on the attached page F address list.
- Changing the data (Data setting)
  The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. Altogether there 256 data from data "00" to data "FF".
- Storing the data
  Press the PAUSE button to store the adjustment data (page F) into the non-volatile memory.
  (If the PAUSE button is not pressed after completing the adjustment, the new adjustment data will not be stored in the non-volatile memory.)

5) After completing all adjustments, turn off the main power supply (7.2 V) once. This releases the adjustment mode (all modes except for page F).

[Sequence of Service Modes Using the Adjustment Remote Commander]



START
Normal mode
Set the NORM - ADJ (HOLD) switch ADJ (ON)
Enters the service mode
Press the EDIT SEARCH +/- button
Page changed
Refer to the memory map
Press the FF/REW button
Address changed
Press the PLAY/ STOP button
Data changed
< When changing adjustment data >
The EVR value (RAM) is changed to the new data.
(But the changed data is not stored in the EE PROM.)
Press the PAUSE button
Date stored
Data stored in EE PROM
Set the NORM - ADJ (HOLD) switch NOR (OFF)

Command Name	Command Function	Normal LANC Command
Page Up	Page + 1	Edit Search +
Page Down	Page - 1	Edit Search -
Direct Page Set	Sets the specified page	Event Clear
Address Up	Address + 1	Fast Forward
Address Down	Address - 1	Rewind
Data Up	Data + 1	Play Back
Data Down	Data - 1	Stop
Store	Stores data in the EE PROM.	Pause

2. Precautions when using the adjustment remote commander

Mishandling of the adjustment remote commander may erase the correct adjustment data which has already been stored in the memory. To prevent this, it is recommended that all adjustment data is noted down on the attached page F address list before starting adjustments in addition to all new adjustment data after the completion of each adjustment step.

Page F Address List

Note 1: Data already stored in the adjustment data memo column are fixed values.

Note 2: The initial adjustment data values are the values which exist immediately after the execution of "F Page Data Initialization" and "F Page Data Modification". These differ from the values which exist after all adjustment have been performed.

Note 3: There are cases where data has been entered into F page addresses between 8C and EF, but these are not related to the adjustments.

Address	Adjustment Data	
	Initial Value	Memo Column
00	00	00
01	00	00
02	00	00
03	02	04
04	10	10
05	E0	E0
06	10	10
07	00	00
08	04	04
09	00	00
0A	FF	
0B	08	
0C	00	
0D	00	
0E	00	
0F	00	
10	00	
11	00	
12	80	
13	40	
14	40	
15	80	
16	80	
17	B9	
18	80	
19	53	
1A	7D	
1B	85	
1C	80	
1D	64	
1E	80	
1F	9E	
20	8E	
21	85	
22	C6	
23	C1	
24	58	
25	60	
26	80	
27	80	
28	48	
29	40	
2A	80	
2B	80	
2C	40	
2D	00	
2E	2D	
2F	D3	
30	2D	
31	FC	
32	F5	
33	00	
34	3C	
35	00	
36	3E	
37	E0	
38	8F	
39	6C	
3A	36	
3B	3C	
3C	A3	
3D	0D	
3E	8E	
3F	12	
40	47	
41	10	
42	80	
43	80	
44	94	94
45	66	66
46	00	00
47	55	55
48	80	80
49	77	77
4A	80	80
4B	77	77
4C	80	80
4D	76	76

Address	Adjustment Data	
	Initial Value	Memo Column
4E	80	80
4F	76	76
50	80	80
51	80	80
52	80	80
53	A8	A8
54	CC	CC
55	3C	3C
56	1B	1B
57	80	80
58	80	80
59	80	80
5A	79	79
5B	4C	4C
5C	17	17
5D	32	32
5E	23	23
5F	45	45
60	16	16
61	A2	A2
62	A3	A3
63	BA	BA
64	2E	2E
65	09	09
66	66	66
67	05	05
68	66	66
69	9F	9F
6A	66	66
6B	66	66
6C	59	59
6D	83	83
6E	67	67
6F	5D	5D
70	5C	5C
71	4A	4A
72	1E	1E
73	5C	5C
74	3A	3A
75	33	33
76	00	00
77	1B	1B
78	E8	E8
79	30	30
7A	10	10
7B	6A	6A
7C	58	58
7D	44	44

Address	Adjustment Data	
	Initial Value	Memo Column
7E	33	33
7F	05	05
80	07	07
81	03	03
82	40	40
83	56	56
84	5D	5D
85	60	60
86	04	04
87	0F	0F
88	10	10
89	0A	0A
8A	38	38
8B	B0	B0
8C～E3		
E4～EF		
F0～FF		

1-2. CAMERA SYSTEM ADJUSTMENTS

1. Adjustment points when major parts have been replaced

When the CCD imager or lens block is replaced, adjust the items indicated by ○ in the following table.

	When the CCD imager is replaced	When the lens block is replaced
HALL adjustment		○
CCD imager compensation data writing	○	
Flange back adjustment	○	○
IRIS IN/OUT adjustment	○	○
MAX GAIN adjustment	○	
Color reproduction adjustment	○	
Auto white balance reference data input	○	
Auto white balance adjustment	○	

2. Power supply voltage check (VC-167 board)

Subject	Any subject
Measuring equipment	Digital voltmeter
DIG5V check	
Measurement Point	CN300 ㊶ Pin (CN300 ㊳, ㊴ Pin: MT GND)
Specification Value	4.86±0.15Vdc
DIG3.5V check	
Measurement Point	CN300 ㉚ Pin (CN300 ㉛, ㉜ Pin: VTR GND)
Specification Value	3.16±0.1Vdc
CAM15V check	
Measurement Point	CN701 ⑯ Pin (CN701 ① Pin: GND)
Specification Value	14.95±0.4Vdc
CAM-8.5V check	
Measurement Point	CN701 ⑭ Pin (CN701 ① Pin: GND)
Specification Value	-8.5±0.5Vdc

Check procedure

1) Check that all power supply voltages satisfy the specified value.
   If not, refer to "Video circuit, Power supply block adjustment".

3. Preparation for adjustment

Objective: Make sure that the camera can be operated from the LANC line even if the mode control microprocessor's A/D port is left open.

Mode	Any Mode
Measuring Equipment	Remote controller RM-95 upgraded for LANC
Adjustment Page	Page 6, page F
Adjustment Address	00, 02

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Turn the main power switch ON.
2	6	00	01	After setting the data, press the PAUSE button.
3	F	02	21	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button.

Note 1: If data 01 is set to page 6, address 00, the adjustment for page F, address 01 to 8B can also be performed.

Note 2: When all adjustments of the camera system is completed, set data 00 to the page F, address 02.

4. Initialization of page F data

Note 1: Execute the initialization of page F only when the non-volatile memory (VC-167 board IC401 EE PROM) is replaced.

Note 2: If the page F data has been initialized, all adjustment items of the camera section must be executed again.

Initializing procedure:

Order	Page	Address	Data	Procedure
1				Turn OFF and ON the main power supply. (Preparation)
2	6	00	01	After setting the data 01 to the address, press the PAUSE button.
	6	11		Confirm that the data is 00.
3	6	01	2D	After setting the data, Press the PAUSE button. (Execution of page F data initialization. By this operation, all the data from address 01 to EF are initialized.)
4	6	11		Confirm that the data is 01.

Works required after initialization

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, Press the PAUSE button.
2	6	00	00	After setting the data, Press the PAUSE button. (End)
				Perform the next item “5. Page F Data Modifications”, then execute all adjustment items of the camera section.

Related Adjustments:

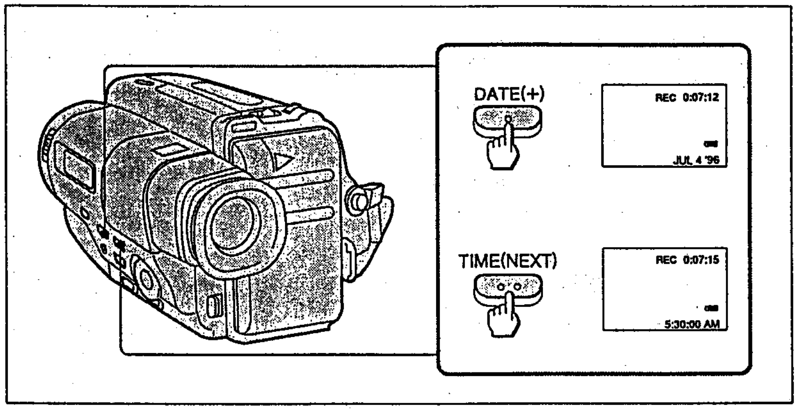
All items of camera adjustment excluding “28 MHz Crystal Oscillator Adjustment”.

Recording with the Date or Time

Before you start recording or during recording, press DATE(+) or TIME(NEXT). You can record the date or time displayed in the viewfinder with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder is recorded.
The clock is set at the factory to Tokyo time for the models sold in Japan, and to New York or Panama time for other models.

Grabación de la fecha o la hora

Antes de comenzar la videofilmación, o durante ella, presione DATE(+) o TIME(NEXT). Usted podrá grabar con las imágenes la fecha o la hora visualizada en el visor. La fecha y la hora no podrán grabarse al mismo tiempo. Excepto los indicadores de la fecha y la hora, no se grabará ninguno de los demás indicadores del visor.
El reloj ha sido ajustado en fábrica a la hora de Tokio para los modelos vendidos en Japón y a la de Nueva York o Panamá para los demás modelos.



To Stop Recording with the Date or Time

Press DATE(+) or TIME(NEXT) again. Recording continues.

Note
You cannot superimpose a title during recording the date or time.

Para parar la grabación de la fecha o la hora

Vuelva a presionar DATE(+) o TIME(NEXT). La grabación de las imágenes continuará.

Nota
Durante la grabación de la fecha o la hora no podrá superponer un título.

Using the PROGRAM AE Function

You can select from three PROGRAM AE (Auto Exposure) modes to suit your shooting situation. When you use PROGRAM AE, you can capture high-speed action or night views.

Empleo de la función PROGRAM AE

Usted podrá seleccionar entre tres modos de PROGRAM AE (exposición automática programada), de acuerdo con la condición de videofilmación. Con la función de PROGRAM AE, podrá captar una acción a gran velocidad o grabar vistas nocturnas.

Selecting the Best Mode

Select the best mode by using the following examples.

Selección del mejor modo

Seleccione el modo apropiado consultando los siguientes ejemplos.

Sports mode
- Outdoor sports scenes such as football, tennis, golf or skiing
- A landscape in a moving car

High-speed shutter mode
- A golf swing or a tennis match in fine weather with the ball captured clearly
- Playing back certain scenes with high-speed movements in clear, sharp picture

Twilight mode
- Recording night views, neon signs or fireworks

Modo de deportes
- Videofilmación de escenas de deportes de exteriores como fútbol, tenis, golf o esquí
- Videofilmación de paisajes desde un automóvil en marcha

Modo de obturación a alta velocidad
- Un swing de golf o un partido de tenis en un día claro con la pelota visualizada claramente
- Reproducir ciertas escenas con movimientos a gran velocidad en una imagen clara y nítida

Modo de crepúsculo
- Videofilmación de vistas nocturnas, letreros de neón o fuegos artificiales.

Using the PROGRAM AE Function

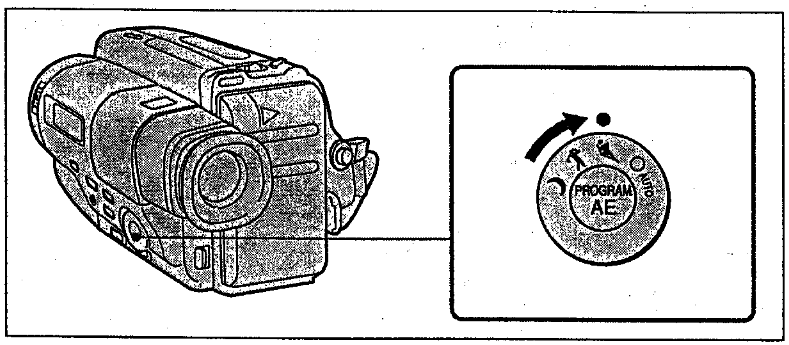
Using the PROGRAM AE Function

Set the mark of the desired mode to the ● mark above the PROGRAM AE dial.

Empleo de la función PROGRAM AE

Utilización de la función PROGRAM AE

Ajuste la marca del modo deseado a la marca ● situada sobre el dial PROGRAM AE.



Note on shutter speed
The shutter speed in each PROGRAM AE mode is as follows:
Sports mode – between 1/60 to 1/500
High-speed shutter mode – 1/4000
Twilight mode – 1/60 (to 1/100 when the Steady Shot is on)
AUTO mode – 1/60 (to 1/100 when the Steady Shot is on)

Nota sobre la velocidad de obturación
La velocidad de obturación en cada modo PROGRAME AE es el siguiente:
Modo de deportes – entre 1/60 y 1/500
Modo de obturación a alta velocidad – 1/4000
Modo de crepúsculo – 1/60 (a 1/100 cuando haya activado la función de videofilmación estable)
Modo AUTO – 1/60 (a 1/100 cuando haya activado la función de videofilmación estable)

Shooting with Backlighting

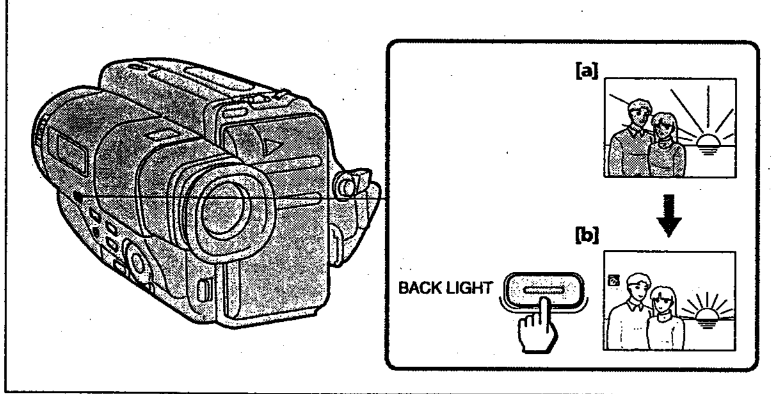
When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT.

Press BACK LIGHT. The ▣ indicator appears inside the viewfinder.

Videofilmación a contraluz

Cuando videofilme un motivo con la fuente de iluminación detrás de él o a contraluz, utilice BACK LIGHT.

Presione BACK LIGHT. En el visor aparecerá el indicador ▣.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After Shooting

Press BACK LIGHT again to let the ▣ indicator go out under normal lighting condition. Otherwise, the picture will be too bright under normal lighting condition.

This function is also effective under following conditions:

- On the snow e.g. at the ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

[a] El motivo está demasiado oscuro debido a la contraluz.
[b] El motivo se ve claro con la compensación de la contraluz.

Después de la videofilmación

Vuelva a presionar BACK LIGHT de forma que desaparezca el indicador ▣ con la iluminación en condición normal. De lo contrario, las imágenes se grabarán demasiado brillantes con la iluminación en condición normal.

Esta función también será efectiva en las siguientes condiciones:

- Paisaje de nieve, p. ej. en un campo de esquí.
- En una playa con luz solar fuerte.
- Un motivo con una fuente de iluminación cercana o un espejo que refleje luz.
- Un motivo blanco contra un fondo blanco. Especialmente cuando videofilme una persona vestida con ropa brillante como de seda o fibra sintética sin utilizar esta función, el rostro tenderá a grabarse oscuro.

Selecting the START/STOP Mode

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.

(1) Slide START/STOP MODE to the desired mode.

♙ : Recording starts when you press START/STOP, and stops when you press it again (normal mode).

⊥ : The camcorder records only while you press down START/STOP.

5 SEC : When you press START/STOP, the camcorder records for about five seconds and then stops automatically.

(2) Turn STANDBY up and press START/STOP. Recording starts.

If you selected 5 SEC, five dots appear in the viewfinder. The dots disappear at a rate of one per second as illustrated below. When about five seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.

If you selected ⊥ , the camcorder records as long as you hold down START/STOP.

Selección del modo de inicio/parada

Su videograbadora posee dos modos además del normal de inicio/parada. Estos modos le permitirán videofilmar una serie de tomas rápidas, lo que resultará en un vídeo alegre.

(1) Deslice START/STOP MODE hasta el modo deseado.

♙ : La grabación se iniciará cuando presione START/STOP, y se parará cuando vuelva a presionarla (modo normal).

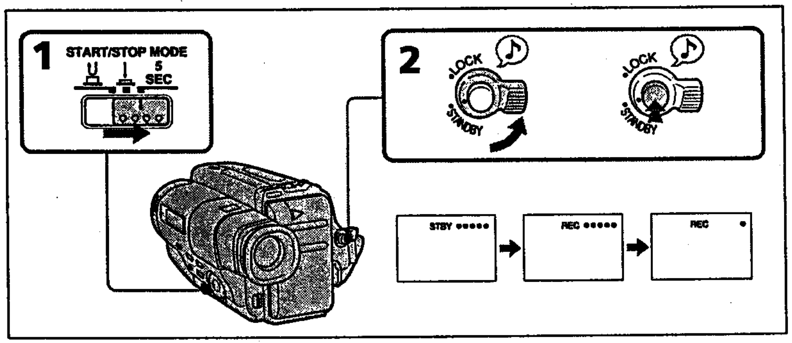
⊥ : La videocámara solamente videofilmará mientras mantenga presionada START/STOP.

5 SEC: Cuando presione START/STOP, la videocámara grabará durante unos cinco segundos y después se parará automáticamente.

(2) Gire STANDBY hacia arriba y presione START/STOP. Se iniciará la grabación.

Si ha seleccionado 5 SEC, en el visor aparecerán cinco puntos. los puntos desaparecerán a un ritmo de uno por segundo como se indica en la ilustración siguiente después de haber transcurrido unos cinco segundos y de haber desaparecido todos los puntos, la videocámara cambiará automáticamente al modo de espera.

Si ha seleccionado ⊥ , la videocámara grabará mientras mantenga presionada START/STOP.



To Extend the Recording Time in 5 SEC Mode

Press START/STOP again before all the dots disappear. Recording continues for about five seconds from the moment you press START/STOP.

Para prolongar el tiempo de videofilmación en el modo 5 SEC

Vuelva a presionar START/STOP antes de que hayan desaparecido todos los puntos. La grabación continuará durante unos cinco segundos desde el momento en el que presionó START/STOP.

Superimposing a Title

You can select from nine preset titles to superimpose it on the picture during recording. Each time you press TITLE, the preset titles appear one by one.

To Superimpose from the Beginning

(1) Slide the POWER switch to CAMERA.
(2) Turn STANDBY up.
(3) Press TITLE repeatedly until the desired title appears. The title flashes.
(4) Press START/STOP to start recording.
(5) Press TITLE when you want to turn off the title.

To Superimpose On the Way of Recording

(1) Press TITLE repeatedly until the desired title appears. The title flashes.
(2) When the title stops flashing, press TITLE. The title disappears.
(3) Press START/STOP to start recording.
(4) Press TITLE when you want to superimpose the title.
(5) Press TITLE when you want to turn off the title.

Superposición de un título

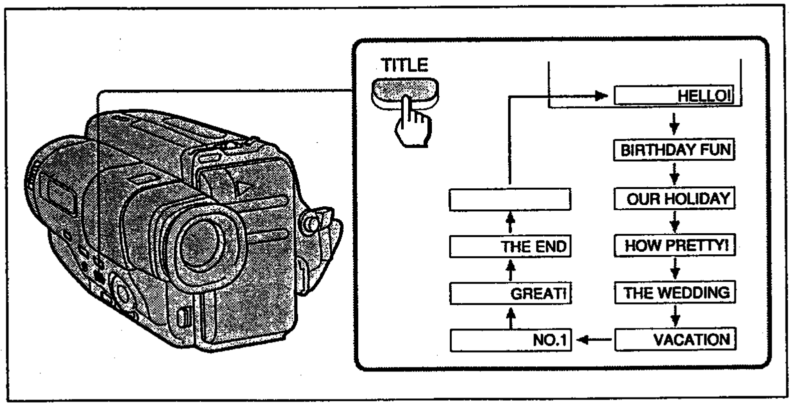
Usted podrá seleccionar un título entre nueve títulos memorizados y superponerlo sobre las imágenes durante la grabación. Cada vez que presione TITLE, los títulos memorizados aparecerán uno por uno.

Para superponer desde el comienzo

(1) Deslice el selector POWER hasta CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione repetidamente TITLE hasta que aparezca el título deseado. El título parpadeará.
(4) Presione START/STOP para iniciar la videofilmación.
(5) Presione TITLE cuando desee que el título desaparezca.

Para superponer en medio de la videofilmación

(1) Presione repetidamente TITLE hasta que aparezca el título deseado. El título parpadeará.
(2) Cuando el título deje de parpadear, presione TITLE. El título desaparecerá.
(3) Presione START/STOP para iniciar la videofilmación.
(4) Presione TITLE cuando desee superponer el título.
(5) Vuelva a presionar TITLE cuando desee que el título desaparezca.



Note on selecting a title
You cannot select a title during recording.

Nota sobre la selección del título
El título no podrá seleccionarse durante la grabación.

Using the Wide Mode Function

You can record a 16:9 wide picture to watch on the 16:9 wide-screen TV.

Using the Wide Mode Function

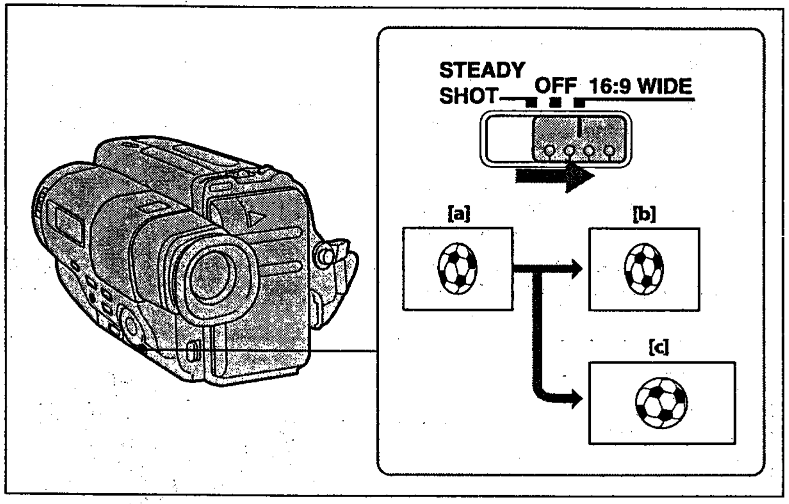
Slide STEADY SHOT/16:9 WIDE to 16:9 WIDE. The picture in the viewfinder **[a]** or on a normal TV **[b]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[c]**.

Utilización del modo de pantalla amplia

Usted podrá videofilmar imágenes con de 16:9 para contemplarlas en un televisor de pantalla amplia de 16:9.

Utilización de la función del modo de pantalla amplia

Deslice STEADY SHOT/16:9 WIDE hasta 16:9 WIDE.
La imagen del visor **[a]** o la de un televisor normal **[b]** se comprimirá horizontalmente. Usted podrá contemplar imágenes normales en un televisor de pantalla amplia **[c]**.



To Release the Wide Mode
Slide STEADY SHOT/16:9 WIDE to OFF.

Notes on wide mode
- In 16:9 WIDE mode, the STEADY SHOT does not work.
- When you record in 16:9 WIDE mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.

Para desactivar el modo de pantalla amplia
Deslice STEADY SHOT/16:9 WIDE hasta OFF.

Notas sobre el modo de pantalla amplia
- En el modo 16:9 WIDE, el modo de videofilmación estable (STEADY SHOT) no trabajará.
- Cuando videofilme en el modo 16:9 WIDE, el indicador de la fecha o de la hora se verá ampliado en el televisor de pantalla amplia.
- Cuando duplique una videocinta, ésta se copiará con el mismo modo que el de grabación original.

Using the STEADY SHOT Function

You can use the Steady Shot to compensate for camera-shake. Do not use the Steady Shot when shooting a stationary object with a tripod.

Using the STEADY SHOT Function

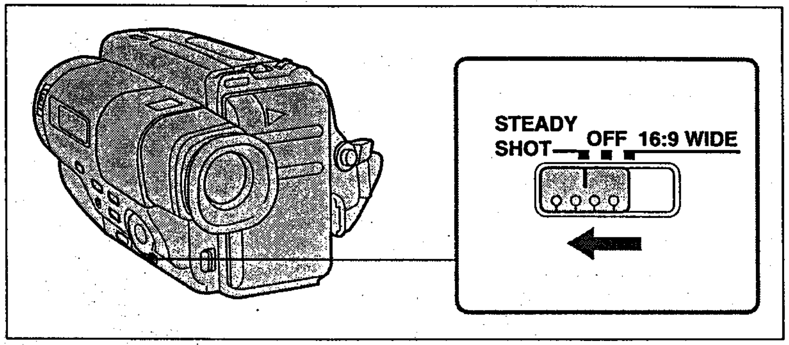
Slide STEADY SHOT/16:9 WIDE to STEADY SHOT.

Utilización de la función de videofilmación estable

Usted podrá utilizar la función de videofilmación estable para compensar las sacudidas de la videocámara. No utilice esta función cuando videofilme un motivo estacionario con un trípode.

Utilización de la función de videofilmación estable

Deslice STEADY SHOT/16:9 WIDE hasta STEADY SHOT.



To Release the Steady Shot
Slide STEADY SHOT/16:9 WIDE to OFF.

Notes on the Steady Shot
- The Steady Shot will not correct excessive camera-shake.
- When you switch the Steady Shot on or off, the exposure may fluctuate.
- When you use the Steady Shot function, the 16:9 WIDE does not work.

Para desactivar la función de videofilmación estable
Deslice STEADY SHOT/16:9 WIDE hasta OFF.

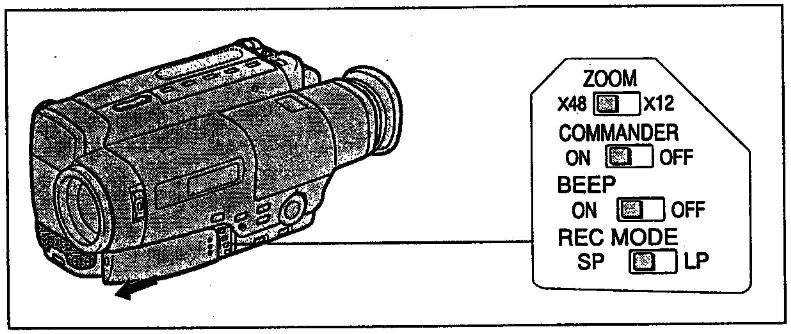
Notas sobre la videofilmación estable
- la videofilmación estable no corregirá sacudidas excesivas de la videocámara.
- Cuando active o desactive la función de videofilmación estable, es posible que fluctúe la exposición.
- Cuando utilice, la función de videofilmación estable, el modo 16:9 WIDE no trabajará.

Changing the Mode Settings

You can change the mode settings to further enjoy the features and functions.
(1) Slide the cover to the left. You will find the mode switches.
(2) Set the mode switches to the desired mode.
(3) Close the cover.

Cambio de los ajustes de modo

Usted podrá cambiar los ajuste de modo para disfrutar más de las funciones de la videocámara.
(1) Deslice la cubierta hacia la izquierda. Encontrará los selectores de modo.
(2) Ponga los selectores de modo en la posición deseada.
(3) Cierre la cubierta.



Selecting the Mode Setting of Each Item

ZOOM <x48/x12>
- Set to x48 to activate digital zooming.
- Set to x12 otherwise. The zooming ability becomes x12.

COMMANDER <ON/OFF>
- Set to ON when using the supplied Remote Commander for the camcorder.
- Set to OFF when not using the Remote Commander for the camcorder.

BEEP <ON/OFF>
- Set to ON to turn the beep sound on.
- Set to OFF to turn the beep sound off.

REC MODE <SP/LP>
- Select SP to record a tape in SP (standard play) mode.
- Select LP to record a tape in LP (long play) mode.

Selección de los ajustes de modo en cada ítem

ZOOM <x48/x12>
- Ajústelo a x48 para activar el zoom digital.
- De lo contrario, ajústelo a x12. El zoom pasará a 12 aumentos.

COMMANDER<ON/OFF>
- Seleccione ON cuando desee emplear el telemando suministrado.
- Seleccione OFF cuando no vaya a emplear el telemando para controlar la vieocámara.

BEEP<ON/OFF>
- Seleccione ON para oír el pitido.
- Seleccione OFF si no desea oír el pitido.

REC MODE <SP/LP>
- Seleccione SP para grabar la cinta en el modo SP (reproducción estándar).
- Seleccione LP para grabar la cinta en el modo LP (reproducción larga).

Editing onto Another Tape

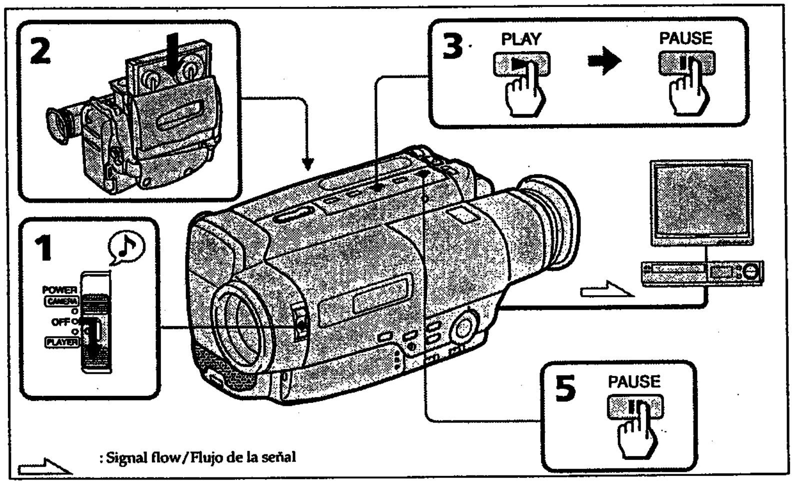
You can create your own video program by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC, β Betamax VCR that has video/audio inputs.

After connecting the camcorder to the VCR,
(1) Slide the POWER switch to PLAYER.
(2) Insert a blank tape (or a tape you want to record over) into the recording VCR. Then insert your recorded tape into the camcorder.
(3) Play back the recorded tape on the camcorder until you locate the point where you want to start editing. Then press ❚❚ to set the camcorder to playback pause mode.
(4) Set the recording VCR to recording pause mode.
(5) Press ❚❚ on the camcorder and then on the VCR to start editing.

Edición en otra cinta

Usted podrá crear su propio programa de vídeo editando con una videograbadora de formato de 8mm 8, 8mm de Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC o Betamax β que disponga de entradas de vídeo/audio.

Después de conectar la videocámara a la videograbadora.
(1) Deslice el selector POWER hasta PLAYER.
(2) Inserte un videocassette en blanco (o una cinta en la que desee realizar la regrabación) en la videograbadora y la cinta grabada en la videocámara.
(3) Reproduzca la cinta grabada en la videocámara hasta localizar el punto en el que desee comenzar la edición. Después presione ❚❚ para poner la videocámara en el modo de reproducción en pausa.
(4) Ponga la videograbadora en el modo de grabación en pausa.
(5) Presione ❚❚ de la videocámara y después de la videograbadora para comenzar la edición.



: Signal flow/Flujo de la señal

To Edit More Scenes

Repeat steps 3 to 5.

To Stop Editing

Press ■ STOP on the camcorder and VCR.

Para editar más escenas

Repita los pasos 3 a 5.

Para parar la edición

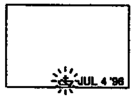
Presione ■ STOP de la videocámara y la videograbadora.

Changing the Lithium Battery in the Camcorder

Reemplazo de la pila de litio de la videocámara

Your camcorder is supplied with a lithium battery installed. When the battery becomes weak or dead, the ⚡ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of any other battery may present a risk of fire or explosion.**
The lithium battery for the camcorder lasts for about 1 year under normal operation. (The lithium battery that comes installed at the factory may not last 1 year.)

En la videocámara se ha insertado en fábrica una pila de litio. Cuando la pila de litio se debilite o agote, el indicador ⚡ parpadeará en el visor durante unos 5 segundos cuando ponga el selector POWER en CAMERA. En esete caso, **reemplace la pila por otra de litio CR2025 Sony o DL-2025 Duracell. El empleo de cualguier otra pila puede suponer un riesgo de incendio o explosión.**
La pila de litio para la videocámara durará aproximadamente 1 año en condiciones normales de funcionamiento. (La pila de litio instalada en fábrica en la videocámara puede que no dure 1 año.)

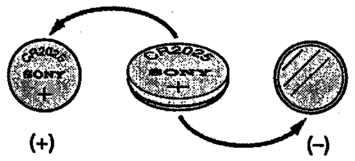


Note on Lithium Battery

Note that the lithium battery has a positive (+) and a negative (–) terminals as illustrated. **Be sure to install the lithium battery so that terminals on the battery match the terminals on the camcorder.**

Nota sobre la pila de litio

Tenga en cuenta que la pila de litio posee un terminal positivo (+) y otro negativo (–) como se ilustra. **Cerciórese de colocar la pila de litio de forma que los terminales de la pila coincidan con los de la videocámara.**



WARNING
The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution
Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

ADVERTENCIA
Si trata mal la pila, puede explotar. No recargue, desarme, ni tire la pila al fuego.

Precaución
Mantenga la pila de litio fuera de alcance de los niños. Si alguien traga la pila, consulte inmediatamente a un médico.

Changing the Lithium Battery

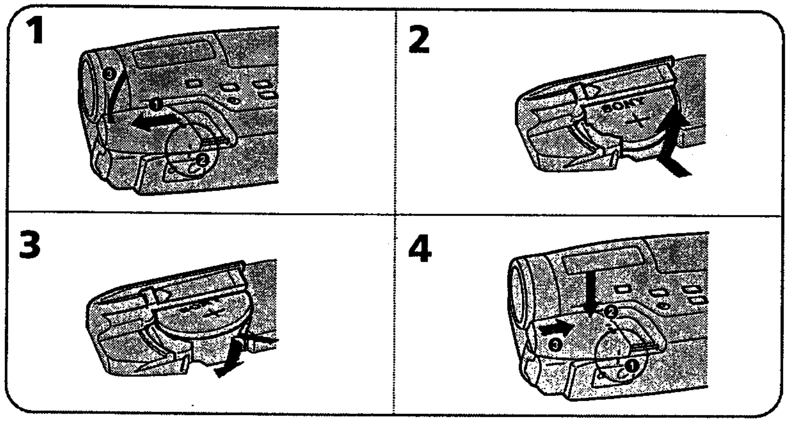
When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date and time.

(1) Slide the cover and align the mark of the cover to that of the body. Press down the cover.
(2) Push the battery in once and pull it out from the holder.
(3) Install the lithium battery with the positive (+) side facing out.
(4) Align the mark of the cover to that of the body. Press the cover until it clicks and slide the cover.

Reemplazo de la pila de litio

Durante el reemplazo de la pila de litio, mantenga la batería u otra fuente de alimentación conectada. De lo contrario, deberá reajustar la fecha y la hora.

(1) Deslice la cubierta y alinee la marca de la cubierta con la marca del cuerpo. Presione la cubierta hacia abajo.
(2) Empuje la pila una vez y extráigala de su compartimiento.
(3) Coloque una pila de litio nueva con la cara positiva (+) hacia afuera.
(4) Alinee la marca de la cubierta con la marca del cuerpo. Presione la cubierta hasta que chasquee y deslícela.



Resetting the Date and Time

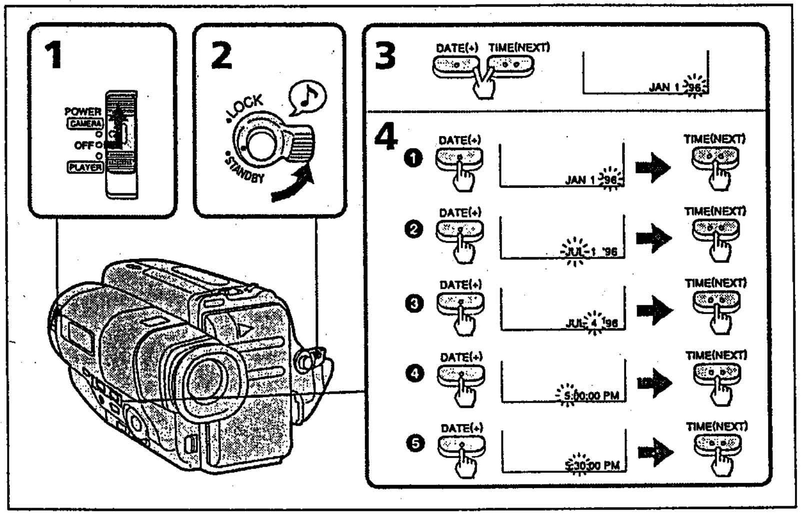
Reset the date and time using the DATE(+) and TIME(NEXT) buttons.

(1) Slide the POWER switch to CAMERA.
(2) Turn STANDBY up.
(3) Press DATE(+) and TIME(NEXT) simultaneously until the year indicator flashes in the viewfinder.
(4) Set year, month, day, time, minute by pressing DATE(+) and TIME(NEXT). Note that when you keep DATE(+) pressed, the digits advance faster.

Reajuste de la fecha y la hora

Reajuste la fecha y la hora utilizando las teclas DATE(+) y TIME(NEXT).

(1) Deslice el selector POWER hasta CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione simultáneamente DATE(+) y TIME(NEXT) hasta que en el visor parpadee el indicador del año.
(4) Ajuste el año, mes, día, hora y minutos presionando DATE(+) y TIME(NEXT). Tenga en cuenta que si mantiene presionada DATE(+), los dígitos avanzarán con mayor rapidez.



To Correct the Date and Time Setting

Repeat steps 3 and 4.

To Check the Date and Time

Press DATE(+) to display the date indicator in the viewfinder. Press TIME(NEXT) to display the time indicator. When you press the same button again, the indicator goes out.

Para corregir los ajustes de la fecha y la hora

Repita los pasos 3 y 4.

Para comprobar la fecha y la hora

Presione DATE(+) de forma que el indicador de la fecha aparezca en el visor. Presione TIME(NEXT) para visualizar el indicador de la hora. Cuando vuelva a presionar la misma tecla, el indicador se apagará.

The year indicator changes as follows:

'96 → '97 ……→ '25

Note on the time indicator

The internal clock of the camcorder operates on a 12-hour cycle.
12:00:00 AM stands for midnight.
12:00:00 PM stands for noon.

El indicador del año cambiará como sigue:

'96 → '97 ……→ '25

Nota sobre el indicador de la hora

El reloj interno de la videocámara trabaja con un ciclo de 12 horas.
12:00:00 AM es la medianoche.
12:00:00 PM es el mediodía.

Playback Modes

The playback mode is selected automatically according to the recording system (SP/LP mode) in which the tape was recorded.

Note on AFM HiFi stereo

When you play back a tape, the sound will be in monaural if:

- You record the tape using this camcorder, then play it back on an AFM HiFi monaural video recoeder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on this camcorder.

Foreign 8 mm video

You cannot play back tapes recorded on a different TV color system. Because the TV color systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to the list of "Using Your Camcorder Abroad" to check the TV color system of foreign countries.

Modos de reproducción

El modo de reproducción se seleccionará automáticamente de acuerdo con el sistema de grabación (modo SP/LP) en el que se haya grabado la cinta.

Notas sobre el sonido estéreo de alta fidelidad de AFM

Cuando reproduzca la cinta, el sonido será monoaural si:

- Graba la cinta con esta videocámara y la reproduce en una videograbadora/reproductor monoaural de alta fidelidad de AFM.
- Graba la cinta en una videograbadora monoaural de alta fidelidad de AFM y la reproduce en esta videocámara.

Videocassette de 8 mm de otro país

Con esta videocámara no podrá reproducir cintas grabadas en un sistema de televisión en color diferente. Como el sistema de televisión en color difiere en cada país, es posible que no pueda reproducir cintas grabadas en otro país. Con respecto al sistema de televisión en color de otros países, consulte "Utilización de la videocámara en el extranjero"

Trip for Using the Battery Pack

This section shows you how you can get the most out of your battery pack.

Preparing the Battery Pack

Always Carry Additional Batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery Life is Shorter in Cold Environment

Battery efficiency is decreased and the battery will be used up more quickly if you are recording in cold environment.

To Save Battery Power

Turn the STANDBY switch on the camcorder down when not recording to save battery power. A smooth transition between scenes can be made even if recording is stopped and started again. While positioning the subject, selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a cassette is inserted or removed.

When to Replace the Battery

While you are using your camcorder in CAMERA mode, the remaining battery indicator decreases gradually as battery power is used up.

Consejos para utilizar la batería

En esta sección se explica la forma de obtener el máximo rendimiento de la batería.

Preparación de la batería

Lleve siempre baterías adicionales

Prepare suficientes baterías como para poder alimentar la videocámara el doble o el triple del tiempo de filmación planeada.

La duración de la batería se acortará en climas fríos.

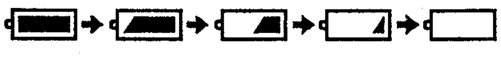
La eficacia de la batería disminuirá y se gastará con mayor rapidez si graba en climas fríos.

Para ahorrar batería

Gire el interruptor STANDBY de la videocámara hacia abajo cuando no vaya a videofilmar a fin de ahorrar batería.
Aunque detenga y reinicie la filmación, obtendrá una grabación sin transiciones bruscas entre las escenas. Mientras encuadre el motivo o seleccione un ángulo, u observe a través del visor, el objetivo se moverá automáticamente y se utilizará la batería. La batería también se utilizará al insertar o extraer un videocassette.

Cuándo reemplazar la batería

Mientras esté utilizando la videocámara en el modo CAMERA, el indicador de carga restante de la batería disminuirá gradualmente a medida que se reduzca la carga de la batería.



When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder.
When the ▭ indicator in the viewfinder disappears and the battery lamp flashes rapidly, turn the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain smooth transition between scenes after the battery pack has been replaced.

Note on the remaining battery indicator
The remaining battery indicator of the camcorder may indicate a different remaining capacity from that of the battery pack with the remaining battery indicator (not supplied). The indicator of the battery pack is more accurate.

Notes on the Rechargeable Battery Pack

Caution

Never leave the battery pack in temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

The Battery Heats Up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern and is normal.

Battery Pack Care

- Remove the battery pack from the camcorder after using it, and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This is shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery right before using the camcorder.

Cuando el indicador de carga restante de la batería llegue al punto mínimo, en el visor aparecerá el indicador ▭ y comenzará a parpadear.
Cuando el indicador ▭ del visor desaparezca y la lámpara de la batería parpadee rápidamente, gire el selector POWER de la videocámara hasta OFF y reemplace la batería. Deje el videocassette en la videocámara para obtener una grabación sin transiciones bruscas entre las escenas después de haber reemplazado la batería.

Nota sobre el indicador de carga restante de la batería
Es posible que este indicador de la videocámara señale una capacidad restante diferente a la indicada por el indicador de la batería (no suministrada). El indicador de la batería es más preciso.

Notas sobre la batería

Precaución

No deje nunca la batería en lugares con una temperatura superior a 60°C, como en el interior de un automóvil aparcado al sol, ni sometido a la luz solar directa.

La batería se calentará

Durante la carga o la grabación, la batería se calentará. Esto se debe a la energía generada y al cambio químico que se produce en el interior de la batería, y no significa problema alguno, es normal.

Cuidado de la batería

- Después de haber empleado la batería quítela de la videocámara y guárdela en un lugar fresco. Mientras la batería esté fijada a la videocámara, circulará una pequeña cantidad de corriente incluso aunque el selector POWER esté en OFF. Esto acortará la duración útil de la batería.
- La batería estará siempre descargándose, incluso aunque no se utilice. Por lo tanto, se recomienda cargarla antes de emplear la videocámara.

Tips for Using the Battery Pack

How to Use the Switch on the Battery Pack

When the switch is supplied with the battery pack ([a] on p. 41) you can use it to find whether the battery pack is charged or not. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up (or in whichever direction you want to remind yourself).

The Life of the Battery Pack

If the battery lamp flashes rapidly just after turning on the camcordrer with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging Temperature

You should charge batteries at temperatures from 10°C to 30°C (from 50°F to 86°F). Lower temperatures require a longer charging time.

Notes on Charging

A Brand-new Battery

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

After Long Storage

Recharge the battery pack after a long period of storage. If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged. Charge it again, but in this case the battery life will be shorter than normal. After several charging and discharging cycles, the battery life will recover its original capacity.

Consejos para utilizar la batería

Utilización del señalador de la batería

Si la batería posee un señalador ([a] de la pág. 41), usted podrá utilizarlo para saber si la batería está cargada o no. Ponga el selector en la posición "sin marca" cuando finalice la carga.
Póngalo en la posición de la "marca roja" cuando la batería esté descargada completamente (o en el sentido que desee y pueda recordar usted mismo).

Vida útil de la batería

Si la lámpara de la batería parpadea rápidamente después de haber conectado la alimentación de la videocámara con una batería completamente cargada, habrá que reemplazarla por otra nueva completamente cargada.

Temperatura durante la carga

Cargue la batería a una temperatura comprendida entre 10 y 30°C. A bajas temperaturas, la carga tardará más en realizarse.

Notas sobre la carga

Baterías nuevas

Una batería nueva no estará cargada. Antes de utilizarla, cárguela completamente.

Después de no haber utilizado una batería durante mucho tiempo

Recargue la batería después de no haberla utilizado durante mucho tiempo. Si una batería cargada completamente no se utiliza durante mucho tiempo (aproximadamente 1 año), se descargará. Vuelva a cargar la batería, pero en este caso su duración será más corta de lo normal. Después de varios ciclos de carga y descarga, la batería recuperará su capacidad original.

Notes on the Terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.
When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Also, wipe the + and – terminals with a soft cloth or paper.

Be Sure to Observe the Following

- **To prevent an accident caused by a short circuit, do not allow metal objects such as a necklace to touch the battery terminals. Carry the battery pack attaching to the terminal cover. [b]**
- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

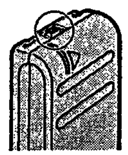
Notas sobre los terminales

Si los terminales (partes metálicas de la parte posterior) no están limpios, la duración de la carga de la batería se acortará.
Cuando los terminales no estén limpios o no haya utilizado la batería durante mucho tiempo, fije y quite la batería varias veces. Esto mejorará el contacto. Además, frote los terminales + y – con un paño o un papel suave.

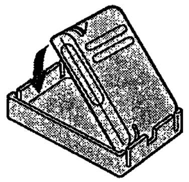
Tenga en cuenta lo siguiente

- **Para prevenir accidentes debido a un cortocircuito, no deje que objetos metálicos como un collar entren en contacto con los terminales de la batería. Cuando lleve la batería, fíjele la cubierta de terminales. [b]**
- Mantenga la batería alejada del fuego.
- Mantenga seca la batería.
- No abra ni desarme la batería.
- No la someta a ninguna clase de golpes.

[a]



[b]



Maintenance Information and Precautions

Información sobre el mantenimiento y precauciones

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Please, take the following precautions.

Inside the Camcorder

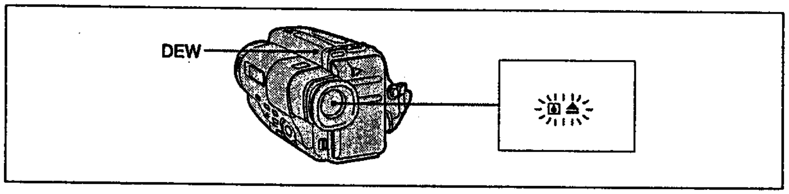
If there is moisture inside the camcorder, the beep sounds and the DEW lamp or the 💧 indicator flashes. If this happens, none of the function except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When ⏏ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour. The camcorder can be used again if the 💧 indicator does not appear when the power is turned on again.

Condensación de humedad

Si traslada directamente la videocámara de un lugar frío a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta, o en el objetivo. En tales condiciones, la cinta puede adherirse al tambor de cabezas y estropearse, o la videocámara puede no funcionar adecuadamente. Para evitar la posibilidad de daños en estas circunstancias, la videocámara dispone de sensores de humedad. Tenga en cuenta las precauciones siguientes.

En el interior de la videocámara

Si se condensa humedad en el interior de la videocámara, sonará un pitido y parpadeará la lámpara DEW o el indicador 💧. En tal caso, no trabajará ninguna función excepto la de expulsión del videocassette. Abra el compartimiento del videocassette, desconecte la alimentación de la videocámara, y déjela durante aproximadamente 1 hora. Cuando el indicador ⏏ parpadee al mismo tiempo, habrá un videocassette insertado en la videocámara. Extraiga el videocassette, desconecte la alimentación de la videocámara, y deje también el videocassette durante aproximadamente 1 hora. La videocámara podrá volver a utilizarse cuando el indicador 💧 no aparezca después de haber conectado de nuevo la alimentación.



On the Lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to Prevent Moisture Condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.

(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

En el objetivo

Si se condensa humedad en el objetivo, aparecerá ningún indicador, pero la imagen se volverá borrosa. Desconecte la alimentación y no utilice la videocámara durante aproximadamente 1 hora.

Cómo prevenir la condensación de humedad

Cuando traslade la videocámara de un lugar frío a otro cálido, coloque la videocámara en una bolsa de plástico y deje que se adapte a las condiciones ambientales de la sala durante cierto tiempo.

(1) No se olvide de cerrar firmemente la bolsa de plástico que contiene la videocámara.

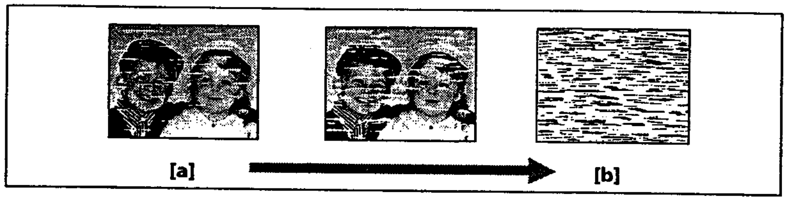
(2) Saque la videocámara de la bolsa cuando la temperatura del aire del interior de la bolsa haya alcanzado la ambiental (después de 1 hora aproximadamente).

Video Head Cleaning

To ensure normal recording and clear pictures, clean the video heads. When ⊗ appears in the viewfinder in CAMERA mode or playback pictures are "noisy" or hardly visible, the video heads may be contaminated.

Limpieza de las cabezas de vídeo

Para asegurar la grabación normal e imágenes claras, limpie las cabezas de vídeo. Cuando en el visor aparezca ⊗ en el modo CAMERA o las imágenes reproducidas sean "ruidosas" o difíciles de ver, es posible que las cabezas de vídeo estén contaminadas.



[a] Slightly contaminated
[b] Critically contaminated

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy", repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

Caution
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note
If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

[a] Ligeramente contaminadas
[b] Seriamente contaminadas

Cuando aparezcan estas imágenes, limpie las cabezas de vídeo con un cassette de limpieza V8-25CLH Sony (no suministrado). Después de la limpieza, si las imágenes siguen "ruidosas", repita la limpieza. (No repita la limpieza más de 5 veces en una sesión.)

Precaución
No utilice cassettes de limpieza de tipo húmedo adquiribles en tiendas del ramo, ya que podrían dañar las cabezas de vídeo.

Nota
Si el cassette de limpieza V8-25CLH no está disponible en su zona, consulte a un centro de servicio Sony.

Maintenance Information and Precautions

Información sobre el mantenimiento y precauciones

Precautions

Camcorder Operation

- Operate the camcorder using 6.0 V (battery pack), or 7.5 V (AC power adaptor).
- For DC or AC operation, use only the recommended accessories.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by your nearest Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.

On Handling Tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape and if the recording tab is out or in.

Camcorder Care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the cassette. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a soft dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

AC Power Adaptor

Charging

- Use only for the specified battery pack. This unit cannot be used to charge a lithium ion type battery.
- Attach the battery pack firmly.
- Place the battery pack on a flat surface without vibration during charging.

Precauciones

Operación de la videocámara

- Alimente la videocámara con 6,0 V (batería) o 7,5 V (adaptador de alimentación de CA).
- Para alimentarla con CC o CA, utilice sólo los accesorios recomendados.
- Si dentro de la videocámara cae algún objeto sólido o líquido, desenchufe la videocámara y haga que sea revisada por su proveedor Sony más cercano antes de reutilizarla.
- Evite tratos bruscos o golpes. Tenga especial cuidado con el objetivo.
- Cuando no vaya a utilizar la videocámara, ponga el selector POWER en OFF.
- No utilice la videocámara envuelta, porque se recalentaría.
- Mantenga la videocámara alejada de campos magnéticos intensos y vibraciones mecánicas.

Cuidado del videocassette

No inserte nada en los pequeños orificios de la parte posterior del videocassette. Estos orificios se utilizan para detectar el tipo de cinta, su grosor, y si la lengüeta de grabación está o no deslizada.

Cuidados de la videocámara

- Cuando no vaya a utilizar la videocámara durante mucho tiempo, desconecte la fuente de alimentación y extraiga el videocassette. Conecte periódicamente la alimentación, haga funcionar las secciones de la videocámara y el reproductor, y reproduzca una cinta durante unos 3 minutos.
- Limpie el polvo del objetivo con un cepillo suave. Elimine las huellas dactilares con un paño suave.
- Limpie el cuerpo de la videocámara con un paño suave y seco, o ligeramente humedecido en una solución muy diluida de detergente. No emplee ningún tipo de disolvente ya que podría dañar la terminación.

Adaptador de alimentación de CA

Carga

- Empléelo solamente para cargar la batería especificada. Este adaptador no podrá emplearse para cargar una batería de tipo iones de litio.
- Fije firmemente la batería.
- Coloque la batería sobre una superficie plana sin vibraciones durante la carga.

Others

- Unplug the unit from the wall (mains) outlet when not in use for a long time. To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC power cord (mains lead) forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or an electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Otros

- Cuando no vaya a utilizar la unidad durante mucho tiempo, desenchúfela de la toma de la red. Para desconectar el cable de alimentación (de la red), tire del enchufe. No tire nunca del propio cable.
- No emplee la unidad con el cable dañado, después de haberla dejado caer, ni cuando esté dañada.
- No doble a la fuerza el cable de alimentación de CA (red), ni coloque objetos pesados sobre él, ya que podría dañar el cable y provocar incendios o descargas eléctricas.
- Cerciórese de que ningún objeto metálico entre en contacto con las partes metálicas de la placa conectora, ya que se podría producir un cortocircuito que dañaría la unidad.
- Mantenga siempre limpios los contactos metálicos.
- No desarme la unidad.
- No golpee ni deje caer la unidad.
- Cuando esté empleando la unidad, especialmente durante la carga, manténgala alejada de receptores de AM y equipos de vídeo porque perturbaría la recepción de AM y la operación de vídeo.
- La unidad se calentará durante el empleo. Pero esto es normal.
- No coloque la unidad en lugares:
  - Extremadamente cálidos o fríos
  - Polvorientos o sucios
  - Muy húmedos
  - Sujetos a vibraciones

Si surge alguna dificultad, desenchufe la unidad y póngase en contacto con su proveedor Sony.

Using Your Camcorder Abroad

Utilización de la videocámara en el extranjero

Each country has its own electricity and TV color systems. Before using your camcorder abroad, check the following points:

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Difference in Color Systems

This camcorder is an NTSC system-based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV. When you want to use a PAL-M system based TV, you will need an NTSC/PAL-M transcoder. Check the following list.

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL-system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

SECAM system countries
Bulgaria, Czech Republic, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Cada país posee su propio sistema de suministro eléctrico y sistema de televisión en color. Antes de utilizar su videocámara en el extranjero, verifique los puntos siguientes:

Fuentes de alimentación

Usted podrá utilizar su videocámara con el adaptador de alimentación de CA suministrado en cualquier país donde la tensión de la red sea de 110 a 240 V CA, 50/60 Hz.

Diferencia en los sistemas de color

Esta videocámara está basada en el sistema NTSC. Si desea ver la imagen reproducida en un televisor, éste deberá estar basado en el sistema NTSC. Si desea utilizar un televisor basado en el sistema NTSC/PAL-M, necesitará un transcodificador PAL-SECAM. Compruebe la lista siguiente.

Países con el sistema NTSC
Bolivia, Canadá, Centroamérica, Colombia, Corea, Chile, Ecuador, EE.UU., Filipinas, Islas Bahamas, Jamaica, Japón, México, Perú, Surinam, Taiwan, Venezuela, etc.

Países con el sistema PAL
Alemania, Australia, Austria, Bélgica, China, Dinamarca, España, Finlandia, Gran Bretaña, Holanda, Hong Kong, Italia, Kuwait, Malasia, Noruega, Nueva Zelanda, Portugal, Singapur, Suecia, Suiza, Tailandia, etc.

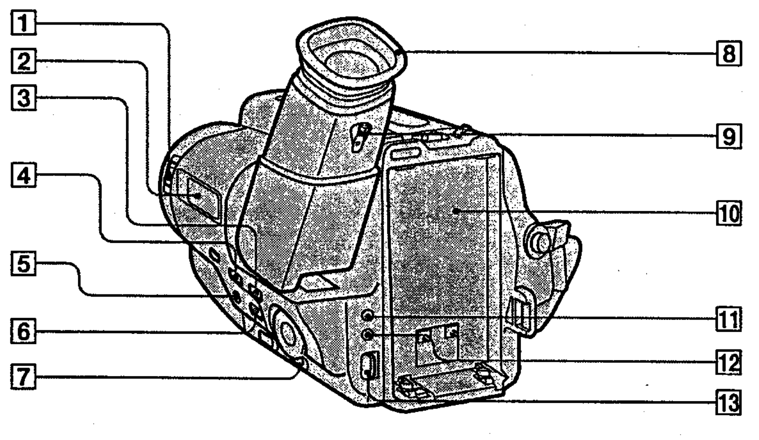
País con el sistema PAL-M
Brasil

Países con el sistema PAL-N
Argentina, Paraguay, Uruguay

Países con el sistema SECAM
Bulgaria, Francia, Guyana, Hungría, Irán, Iraq, Mónaco, Polonia, República de Checoslovaquia, República de Eslovaquia, Rusia, Ucrania, etc.

Identifying the Parts

Identificación de las partes



1 **POWER switch (p. 10, 19)**

2 **Display window (p. 62)**

3 **TIME(NEXT) button (p. 24, 36)**

4 **DATE(+) button (p. 24, 36)**

5 **COUNTER RESET button (p. 13)**

6 **TITLE button (p. 29)**

7 **STEADY SHOT/16:9 WIDE mode switch (p. 30, 31)**

8 **Eyecup (p. 16)**

9 **Viewfinder lens adjustment lever (p. 11)**

10 **Battery mounting surface (p. 8)**

11 **LANC Ⓛ control jack**
Connect the LANC Ⓛ connecting cable to a wired remote control unit such as an editing controller. In this case, set the COMMANDER mode to OFF (p. 32). Ⓛ stands for Local Application Control Bus sytem. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

12 **∩ (headphones) jack (p. 20)**

13 **BATT (battery) release knob (p. 8)**

1 **Selector de alimentación (POWER) (pág. 10, 19)**

2 **Visualizador (pág. 62)**

3 **Tecla de ajuste de la hora [TIME(NEXT)] (pág. 24, 36)**

4 **Tecla de ajuste de la fecha [DATE(+)] (pág. 24, 36)**

5 **Tecla de puesta a cero del contador (COUNTER RESET) (pág. 13)**

6 **Tecla del título (TITLE) (pág. 29)**

7 **Selector de modo de videofilmación estable/pantalla amplia (STEADY SHOT/16:9 WIDE) (pág. 30, 31)**

8 **Ocular (pág. 16)**

9 **Palanca de ajuste de la lenta del visor (pág. 11)**

10 **Superficie de montaje de la batería (pág. 8)**

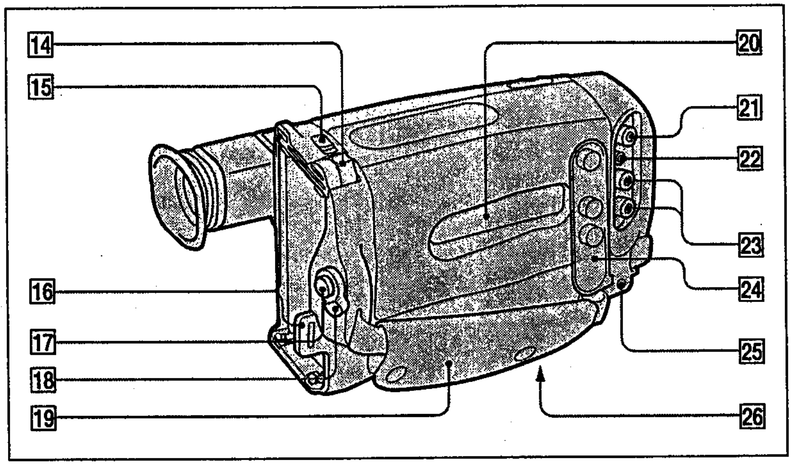
11 **Toma de control remoto (LANC Ⓛ)**
Conecte un cable conector LANC Ⓛ a una unidad de control remoto alámbrico como un controlador de edición. En este caso, ajuste el modo de COMMANDER a OFF (pág. 32)
Ⓛ significa sistema de control de bus de aplicación local. La toma Ⓛ se emplea para controlar el movimiento de la cinta de equipos de vídeo y dispositivos periféricos conectados a la misma. Esta toma posee la misma función que los conectores indicados como CONTROL L o REMOTE.

12 **Toma para auriculares (∩) (pág. 20)**

13 **Mando de expulsión de la batería (BATT) (pág. 8)**

Identifying the Parts

Identificación de las partes



14 **Power zoom lever (p. 14)**

15 **EJECT knob (p. 9)**

16 **Hooks for shoulder strap (p. 58)**

17 **START/STOP button (p. 10)**

18 **STANDBY switch (p. 10)**

19 **Grip strap (p. 16)**

20 **Cassette compartment (p. 9)**

21 **VIDEO OUT jack (p. 18)**

22 **RFU DC OUT (RFU adaptor DC out) jack**

23 **AUDIO OUT jack (p. 18)**

24 **Jack cover**

25 **MIC (microphone) jack**
Connect an optional external microphone. This jack also accepts a "plug-in-power" microphone.

26 **Tripod receptacle (p. 16)**
Attach a tripod (not supplied) here.

14 **Palanca del zoom motorizado (pág. 14)**

15 **Tecla de expulsión del videocassette (EJECT) (pág. 9)**

16 **Ganchos para la bandolera (pág. 58)**

17 **Tecla de inicio/parada (START/STOP) (pág. 10)**

18 **Interruptor de espera (STANDBY) (pág. 10)**

19 **Correa de la empuñadura (pág. 16)**

20 **Compartimiento del videocassette (pág. 9)**

21 **Toma de salida de vídeo (VIDEO OUT) (pág. 18)**

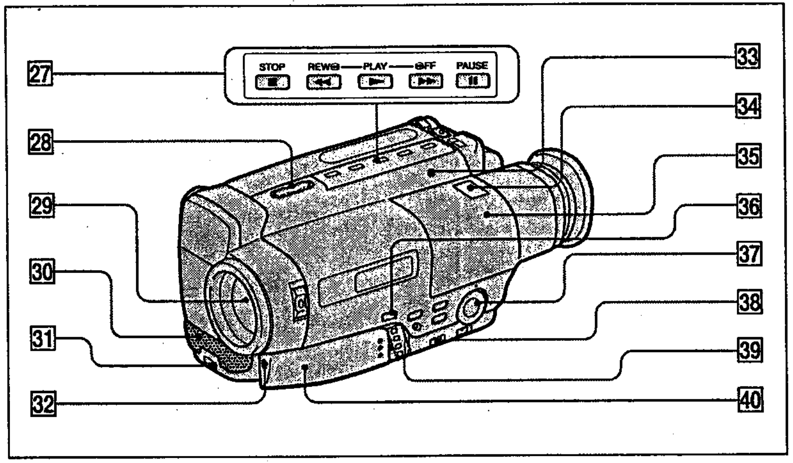
22 **Toma de salida de CC para el adaptador de RFU (RFU DC OUT)**

23 **Toma de salida de audio (AUDIO OUT) (pág. 18)**

24 **Cubierta de tomas**

25 **Toma para micrófono (MIC)**
Conecte un micrófono externo ocional. Esta toma también acepta un micófono "alimentado a través de la clavija".

26 **Receptáculo para trípode (pág. 16)**
Fíjele un trípode (no suministrado).



27 **Tape transport buttons (p. 19, 20)**
■ STOP
◀◀ REW (rewind)
▶ PLAY (playback)
▶▶ FF (fast forward)
II PAUSE
These buttons will function in PLAYER mode.

28 **EDITSEARCH button (p. 17)**

29 **Lens cover**

30 **Built-in microphone**

31 **Remote sensor (p. 60)**

32 **Camera recording/battery lamp**

33 **DEW lamp (p. 42)**

34 **Lighting aperture**

35 **Viewfinder (p. 11)**

36 **BACK LIGHT button (p. 27)**

37 **PROGRAM AE dial (p. 26)**

38 **START/STOP MODE switch (p. 10, 12, 28)**

39 **Mode switches (p. 32)**

40 **Lithium battery compartment (p. 35)**

27 **Teclas de transporte de la cinta (pág. 19, 20)**
■ STOP(parada)
◀◀ REW (rebobinado)
▶ PLAY (reproducción)
▶▶ FF (avance rápido)
II PAUSE (pausa)
Estas teclas funcionarán en el modo PLAYER.

28 **Tecla de búsqueda para edición (EDITSEARCH) (pág. 17)**

29 **Cubierta del objetivo**

30 **Micrófono incorporado**

31 **Sensor remoto (pág. 60)**

32 **Lámpara indicadora de videofilmación/ estado de la batería**

33 **Lámpara de humedad (DEW) (pág. 42)**

34 **Apertura de luz**

35 **Visor (pág. 11)**

36 **Tecla de videofilmación a contraluz (BACK LIGHT) (pág. 27)**

37 **Dial de exposición automática programada (PROGRAM AE) (pág. 26)**

38 **Selector de modo de inicio/parada de la videofilmación (START/STOP MODE) (pág. 10, 12, 28)**

39 **Selectores de modo (pág. 32)**

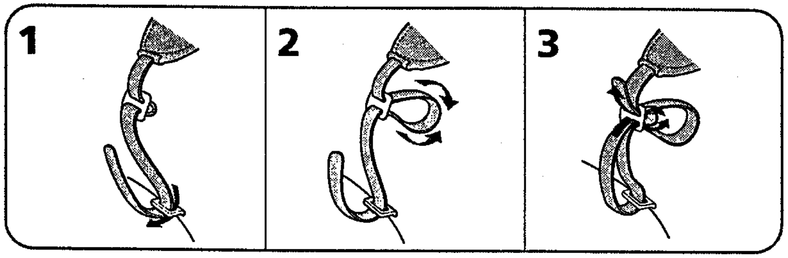
40 **Compartimiento de la pila de litio (pág. 35)**

Identifying the Parts

Identificación de las partes

Attaching the shoulder strap
Attach the supplied shoulder strap to the hooks for the shoulder strap (16 on page 56).

Fijación de la bandolera
Fije la bandolera suministrada a los ganchos para la misma (16 de la página 56).

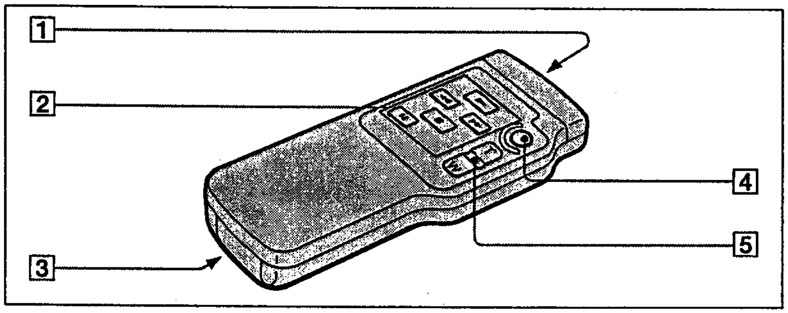


Remote Commander

The buttons that have the same name on the Remote Commander and on the camcorder function identically.

Telemando

Las teclas del telemando con el mismo nombre que las de la videocámara poseen idéntica función.



1. **Transmitter**
   Point toward the remote sensor to control the camcorder after turning on the POWER switch on the camcorder.
2. **Tape transport buttons (p. 19, 20)**
3. **R6 (size AA) battery holder (p. 59)**
4. **START/STOP button**
5. **Power zoom button**
   The zooming speed is unchangeable on the Remote Commander.

1. **Transmisor**
   Para controlar la videocámara con el telemando, deslice el selector POWER de la videocámara y apunte este transmisor hacia el sensor de control remoto.
2. **Teclas de transporte de la cinta (pág. 19, 20)**
3. **Compartimiento de las pilas R6 (tamaño AA) (pág. 59)**
4. **Tecla de inicio/parada (START/STOP)**
5. **Tecla del zoom motorizado**
   La velocidad del zoom no podrá cambiarse en el telemando.

Preparing the Remote Commander

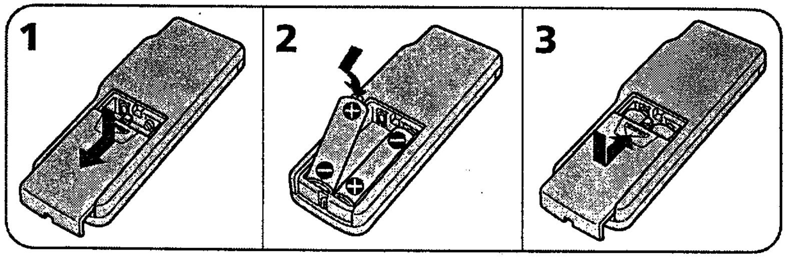
To use the Remote Commander, you must insert two R6 (size AA) batteries. Use the supplied R6 (size AA) batteries.

(1) Remove the battery cover from the Remote Commander.
(2) Insert both of the R6 (size AA) batteries with correct polarity.
(3) Put the battery cover back onto the Remote Commander.

Preparación del telemando

Para utilizar el telemando, deberá colocar dos pilas R6 (tamaño AA). Utilice las pilas R6 (tamaño AA) suministradas.

(1) Quite la tapa del compartimiento de las pilas del telemando.
(2) Inserte las dos pilas R6 (tamaño AA) con la polaridad correcta.
(3) Cierre la tapa.



Note on battery life
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage
Remove the batteries when you will not use the Remote Commander for a long time.

Nota sobre la duración de las pilas
Las pilas en el telemando durarán unos 6 meses por lo menos en condiciones normales de funcionamiento. Cuando las pilas se debiliten o agoten, el telemando no funcionará.

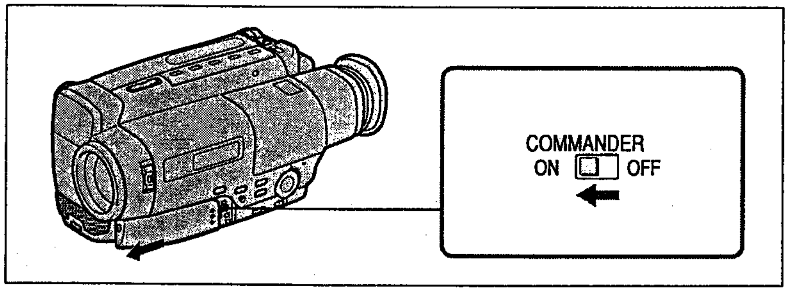
Para evitar el daño que podría causar el derrame del electrólito de las pilas
Cuando no vaya a utilizar el telemando durante mucho tiempo, extraiga las pilas.

Using the Remote Commander

Make sure that the COMMANDER mode is set to ON (p. 32).

Utilización del telemando

Cerciórese de activar (ON) el modo de telemando (COMMANDER) (pág. 32).

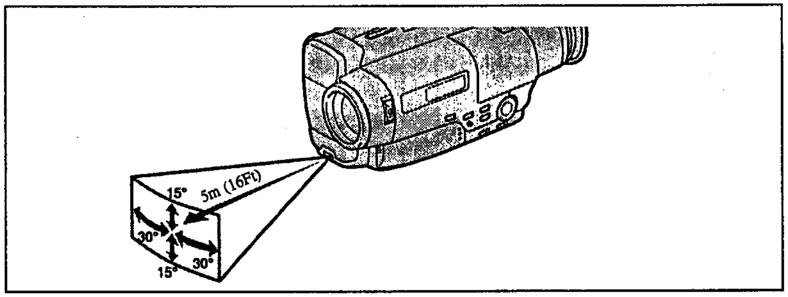


Remote Control Direction

Aim the Remote Commander to the remote sensor within the range as shown below.

Área controlable mediante el telemando

Apunte con el telemando hacia el sensor remoto dentro del alcance que se muestra en la ilustración.



Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works at commander mode VTR 2. The commander modes (1, 2, and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR at commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Notas sobre el telemando

- Mantenga el sensor remoto alejado de luces intensas, como la directa del sol u otras de iluminación intensa. De lo contrario, el telemando no funcionará adecuadamente.
- Asegúrese de que no haya ningún obstáculo entre el telemando y el sensor remoto.
- Esta videocámara funciona con señales del modo de mando VTR 2. El modo de mando (1, 2 y 3) se utiliza para distinguir esta videocámara de otras videograbadoras Sony para evitar una operación errónea. Si utiliza otra videograbadora Sony en el modo de mando VTR 2, se recomienda cambiarlo o cubrir el sensor remoto de la videograbadora con un papel negro.

To Watch the Demonstration

You can watch a brief demonstration of pictures with titles.

If the demonstration appears when you turn on the camcorder for the first time, exit the Demo mode to use your camcorder.

To enter Demo mode

(1) Eject the cassette and slide the POWER switch to OFF.
(2) Turn STANDBY up.
(3) While holding down ► PLAY, slide the POWER switch to CAMERA. Demonstration starts. The demonstration stops when you insert the cassette.

Note that once you enter Demo mode, this mode is retained as long as the lithium battery is in place. Therefore, demonstration starts automatically 10 minutes later every time you slide the POWER switch to CAMERA, or after you eject the cassette.

To exit Demo mode

(1) Slide the POWER switch to OFF.
(2) Turn STANDBY up.
(3) While holding down ■ STOP, slide the POWER switch to CAMERA.

Para ver la demostración

Usted podrá ver una corta demostración de imágenes con títulos.

Si aparece la demostración al conectar la alimentación de la videocámara por primera vez, salga del modo de demostración para utilizar la videocámara.

Para entrar en el modo de demostración

(1) Expulse el videocassette y deslice el selector POWER hasta OFF.
(2) Gire STANDBY hacia arriba.
(3) Manteniendo presionada ► PLAY hacia abajo, deslice el selector POWER hasta CAMERA. La demostración comenzará y cesará cuando inserte un videocassette.

Tenga en cuenta que una vez que haya entrado en el modo de demostración, este modo se mantendrá mientras la pila de litio esté en su lugar. Por lo tanto, la demostración comenzará automáticamente después de 10 minutos cada vez que deslice el selector POWER hasta CAMERA, o después de expulsar el videocassette.

Para salir del modo de demostración

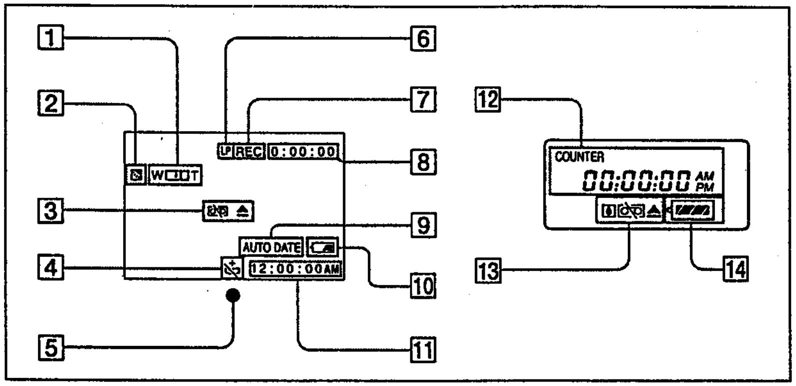
(1) Deslice el selector POWER hasta OFF.
(2) Gire STANDBY hacia arriba.
(3) Manteniendo presionada ■ STOP hacia abajo, deslice el selector POWER hasta CAMERA.

Operation Indicators

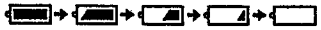
The indicators in the viewfinder appear in CAMERA mode only.

Indicadores de operación

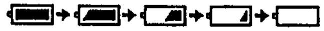
Los indicadores aparecerán en el visor solamente en el modo CAMERA.



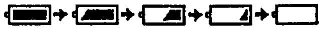
1 Power zoom indicator (p. 15)
2 Backlight indicator (p. 27)
3 Warning indicator (p. 63)
4 Lithium battery indicator (p. 34)
5 Recording lamp/battery lamp (p. 10)
6 Recording in LP mode (p. 10)
7 Tape transport mode (p. 10)
8 Tape counter (p. 13)
9 AUTO DATE indicator (p. 10)
10 Remaining battery indicator (p. 38)



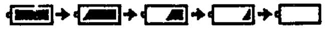
11 Date, Time or Title (p. 24, 29)
12 Tape counter (p. 13)
Date or time indicator (p. 24)
13 Warning indicator (p. 63)
14 Remaining battery indicator (p. 38)



1 Indicador del zoom motorizado (pág. 15)
2 Indicador de videofilmación a contraluz (pág. 27)
3 Indicador de advertencia (pág. 63)
4 Indicador de estado de la pila de litio (pág. 34)
5 Lámpara indicadora de videofilmación/ estado de la batería (pág. 10)
6 Grabación en el modo LP (pág. 10)
7 Modo de transporte de la cinta (pág. 10)
8 Contador de la cinta (pág. 13)
9 Indicador de grabación automática de la fecha (AUTO DATE) (pág. 10)
10 Indicador de carga restante de la batería (pág. 38)



11 Fecha, hora o título (pág. 24, 29)
12 Contador de la cinta (pág. 13)
Indicador de fecha o de hora (pág. 24)
13 Indicador de advertencia (pág. 63)
14 Indicador de carga restante de la batería (pág. 38)



Warning Indicators

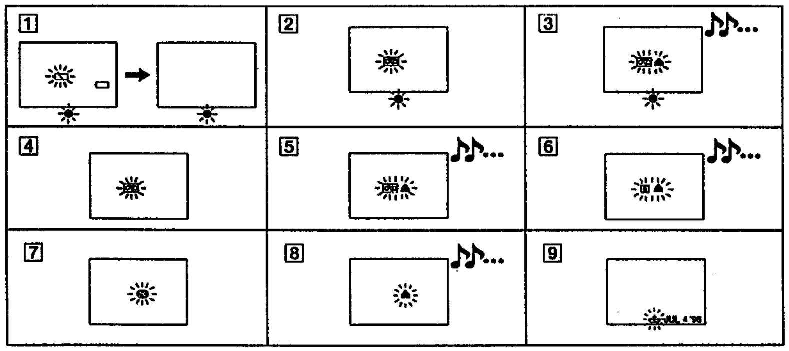
Indicadores de advertencia

All indicators appear only when you use the camcorder in CAMERA mode.
If indicators flash in the viewfinder, or a caution lamp on the camcorder flashes, check the following:

♪: You can hear the beep sound when BEEP is set to ON (p. 32).

Todos los indicadores aparecerán solamente cuando utilice la videocámara en el modo CAMERA. Si parpadean indicadores en el visor, o una lámpara de precaución en la videocámara, verifique los puntos siguientes:

♪: Si ajusta BEEP a ON, podrá oir el pitido (pág. 32).



1 **Battery Remaining**
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 **The tape is near the end.**

3 **The tape has run out.**

4 **No tape has been inserted.**

5 **The tab on the tape is out (red) (p. 9).**

6 **Moisture condensation has occurred (p. 42).**
≜ indicator appears only when the cassette is inserted.

7 **The video heads may be contaminated (p. 43).**

8 **Some other trouble has occurred.**
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 **The lithium battery is weak or the lithium battery is not installed (p. 34).**
This indicator flashes just only after powering on.

1 **Carga restante de la batería**
Parpadeo lento: La batería está débil.
Parpadeo rápido: La batería está agotada.

2 **La cinta está a punto de finalizar.**

3 **La cinta ha finalizado.**

4 **No hay videocassette insertado.**

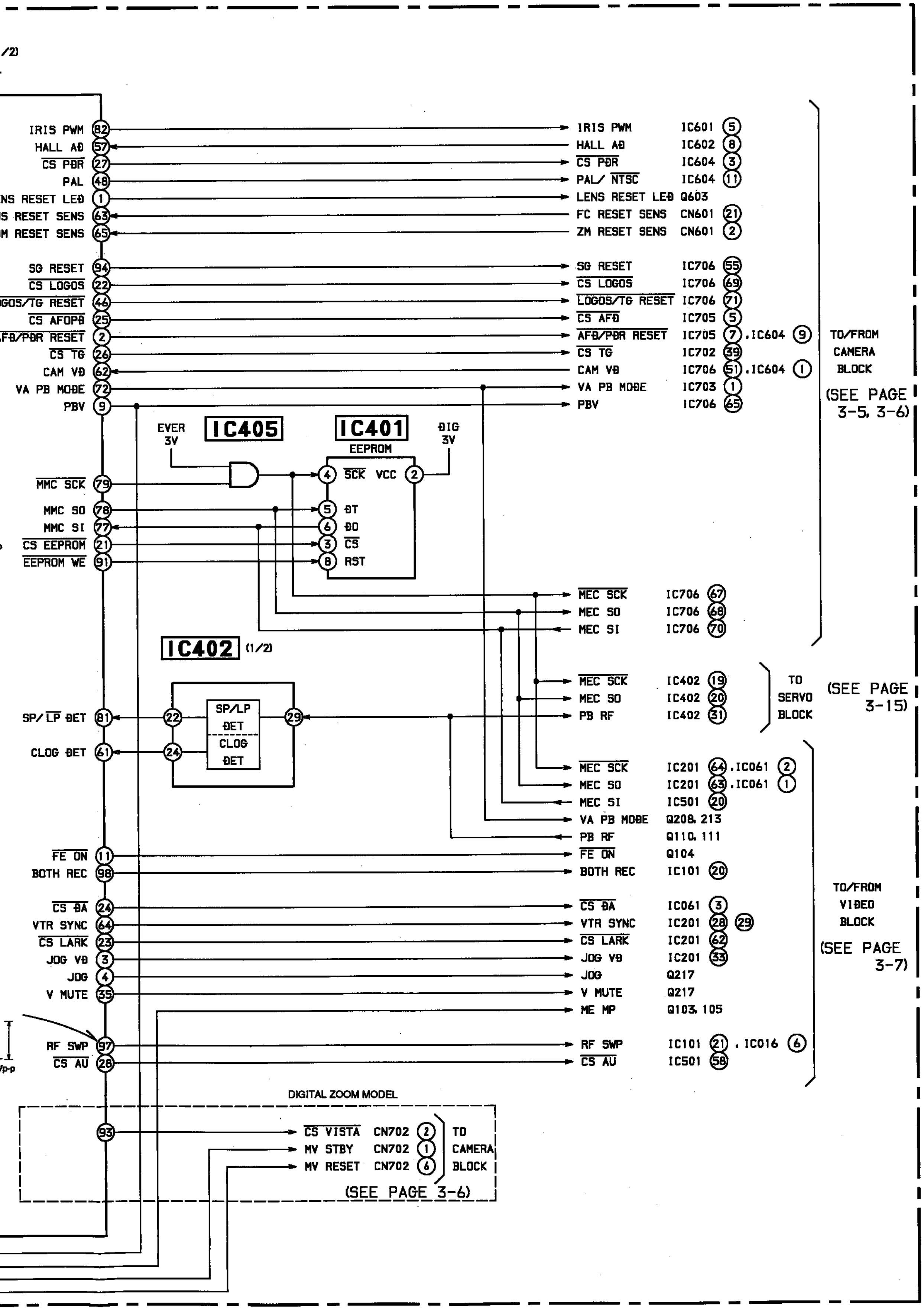
5 **La lengüeta del videocassette está al descubierto (roja) (pág. 9).**

6 **Se ha producido condensación de humedad (pág. 42).**
El indicador ≜ aparecerá solamente cuando esté insertado un videocassette.

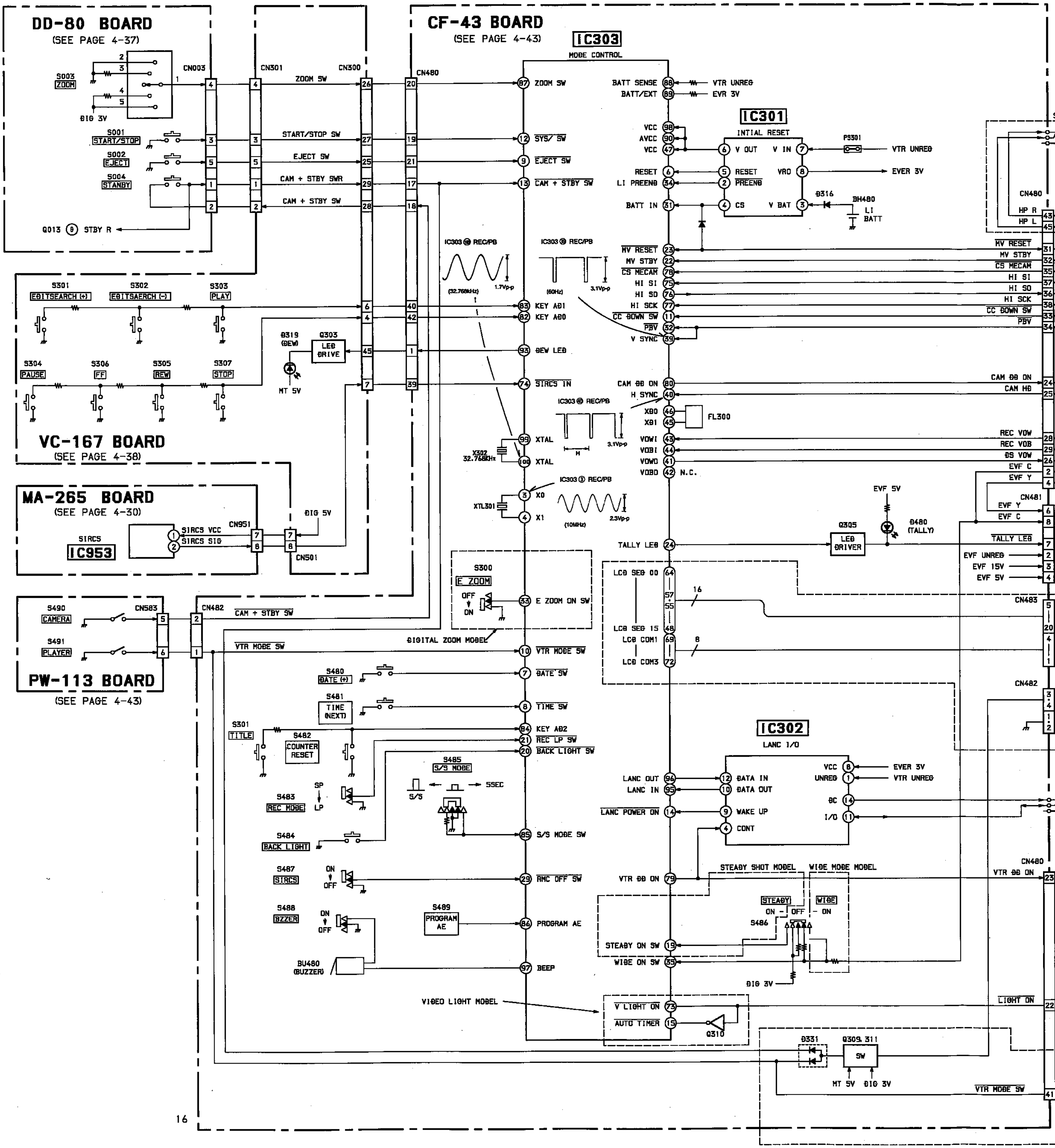
7 **Las cabezas de video pueden estar contaminadas (pág. 43).**

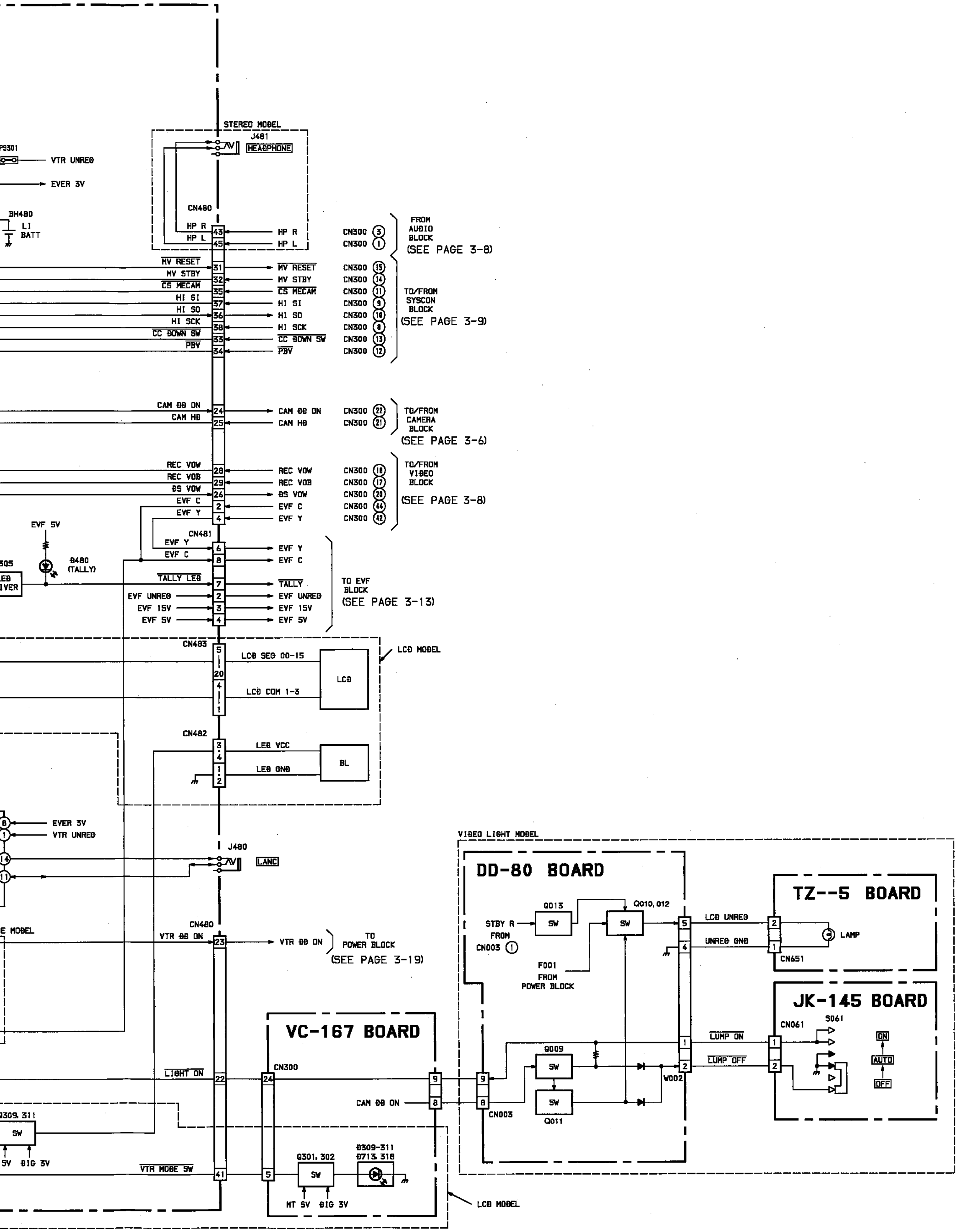
8 **Se ha producido algún otro problema.**
Desconecte la fuente de alimentación y póngase en contacto con su proveedor Sony o una estación de servicio autorizada local.

9 **La pila de litio está débil, o no está colocada (pág. 34).**
Este indicador parpadeará solamente después de haber conectado la alimentación.

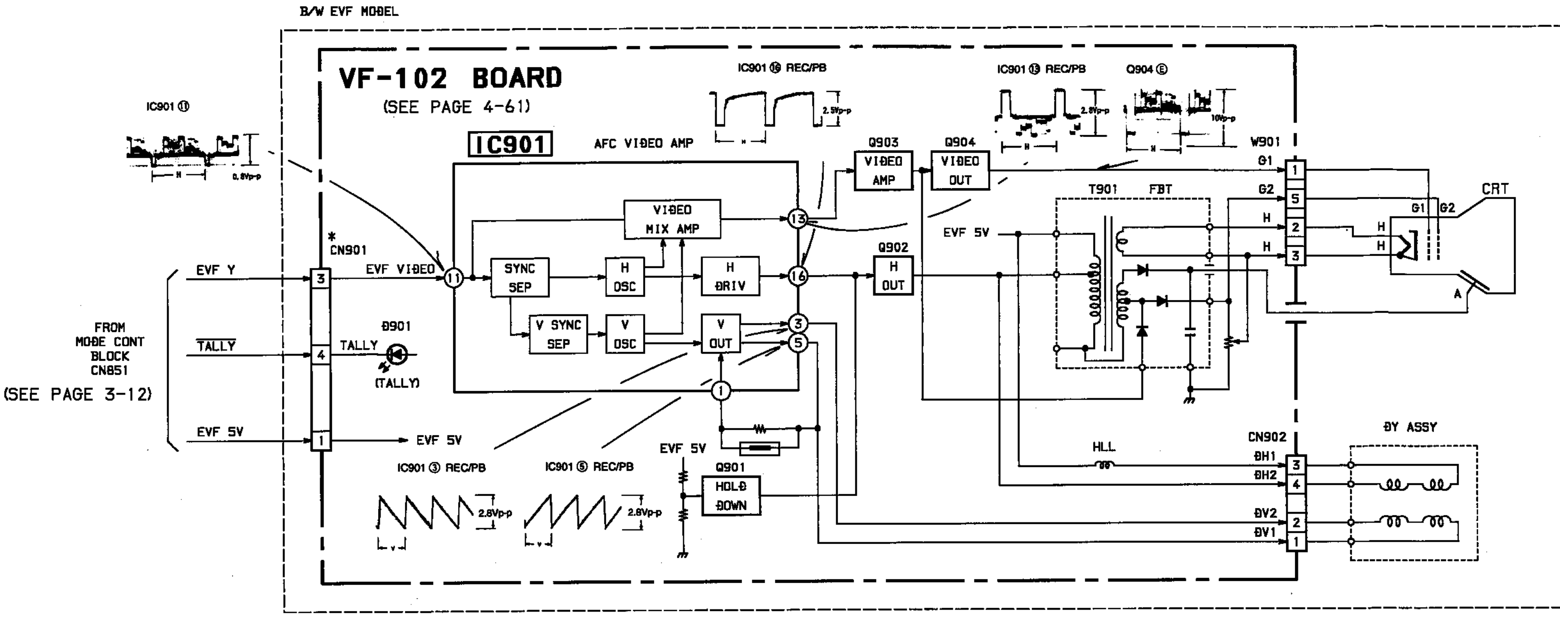

/2)
IRIS PWM 82
HALL AD 57
CS PDR 27
PAL 48
NS RESET LED 1
S RESET SENS 63
M RESET SENS 65
SG RESET 94
CS LOGOS 22
GOS/TG RESET 46
CS AFOPD 25
FD/PDR RESET 2
CS TG 26
CAM VD 62
VA PB MODE 72
PBV 9
IRIS PWM IC601 5
HALL AD IC602 8
CS PDR IC604 3
PAL/ NTSC IC604 11
LENS RESET LED Q603
FC RESET SENS CN601 21
ZM RESET SENS CN601 2
SG RESET IC706 55
CS LOGOS IC706 69
LOGOS/TG RESET IC706 71
CS AFD IC705 5
AFD/PDR RESET IC705 7 .IC604 9
CS TG IC702 39
CAM VD IC706 51 .IC604 1
VA PB MODE IC703 1
PBV IC706 65
TO/FROM CAMERA BLOCK
(SEE PAGE 3-5, 3-6)
EVER 3V
IC405
IC401
EEPROM
DIG 3V
4 SCK VCC 2
5 DT
6 DO
3 CS
8 RST
MMC SCK 79
MMC SO 78
MMC SI 77
CS EEPROM 21
EEPROM WE 91
MEC SCK IC706 67
MEC SO IC706 68
MEC SI IC706 70
IC402 (1/2)
MEC SCK IC402 19
MEC SO IC402 20
PB RF IC402 31
TO SERVO BLOCK
(SEE PAGE 3-15)
SP/LP DET 81
CLOG DET 61
22 SP/LP DET 29
24 CLOG DET
MEC SCK IC201 64 .IC061 2
MEC SO IC201 63 .IC061 1
MEC SI IC501 20
VA PB MODE Q208, 213
PB RF Q110, 111
FE ON 11
BOTH REC 98
FE ON Q104
BOTH REC IC101 20
CS DA 24
VTR SYNC 64
CS LARK 23
JOG VD 3
JOG 4
V MUTE 35
CS DA IC061 3
VTR SYNC IC201 28 29
CS LARK IC201 62
JOG VD IC201 33
JOG Q217
V MUTE Q217
ME MP Q103, 105
TO/FROM VIDEO BLOCK
(SEE PAGE 3-7)
RF SWP 97
CS AU 28
RF SWP IC101 21 . IC016 6
CS AU IC501 58
V/p-p
DIGITAL ZOOM MODEL
93
CS VISTA CN702 2
MV STBY CN702 1
MV RESET CN702 6
TO CAMERA BLOCK
(SEE PAGE 3-6)

3-5. MODE CONTROL BLOCK DIAGRAM


DD-80 BOARD
(SEE PAGE 4-37)
S003 ZOOM
DIG 3V
S001 START/STOP
S002 EJECT
S004 STANBY
Q013 (8) STBY R
CN003
CN301
CN300
ZOOM SW
START/STOP SW
EJECT SW
CAM + STBY SWR
CAM + STBY SW
CF-43 BOARD
(SEE PAGE 4-43)
CN480
IC303
MODE CONTROL
ZOOM SW
SYS/ SW
EJECT SW
CAM + STBY SW
BATT SENSE
BATT/EXT
VTR UNREG
EVR 3V
IC301
INTIAL RESET
VCC
AVCC
V OUT
V IN
PS301
RESET
LI PREEND
PREEND
VRD
EVER 3V
BATT IN
CS
V BAT
D316
BH480
LI BATT
HP R
HP L
IC303 (83) REC/PB
IC303 (99) REC/PB
(32.768kHz)
1.7Vp-p
(60Hz)
3.1Vp-p
HV RESET
MV STBY
CS MECAM
HI SI
HI SO
HI SCK
CC DOWN SW
PBV
V SYNC
KEY AD1
KEY AD0
DEW LED
SIRCS IN
S301 EDITSEARCH (+)
S302 EDITSAERCH (-)
S303 PLAY
D319 (DEW)
Q303 LED DRIVE
MT 5V
S304 PAUSE
S306 FF
S305 REW
S307 STOP
VC-167 BOARD
(SEE PAGE 4-38)
CAM DD ON
CAM HD
H SYNC
IC303 (40) REC/PB
XDD
XD1
FL300
XTAL
X302 32.768kHz
3.1Vp-p
VDWI
VDBI
VDWO
VDBO
N.C.
REC VDW
REC VDB
DS VDW
EVF C
EVF Y
IC303 (3) REC/PB
X0
X1
XTL301
(10MHz)
2.3Vp-p
EVF 5V
CN481
D480 (TALLY)
Q305 LED DRIVER
TALLY LED
EVF UNREG
EVF 15V
EVF 5V
MA-265 BOARD
(SEE PAGE 4-30)
SIRCS IC953
SIRCS VCC
SIRCS SIG
CN951
DIG 5V
CN501
S300 E ZOOM
OFF ON
E ZOOM ON SW
LCD SEG 00
LCD SEG 15
LCD COM1
LCD COM3
16
8
CN483
S490 CAMERA
S491 PLAYER
CN583
CN482
CAM + STBY SW
VTR MODE SW
DIGITAL ZOOM MODEL
PW-113 BOARD
(SEE PAGE 4-43)
S480 DATE (+)
DATE SW
S481 TIME (NEXT)
TIME SW
S301 TITLE
S482 COUNTER RESET
KEY AD2
REC LP SW
BACK LIGHT SW
IC302
LANC I/O
S485 S/S MODE
5SEC
S/S
S483 REC MODE
SP LP
LANC OUT
LANC IN
DATA IN
DATA OUT
VCC
UNREG
EVER 3V
VTR UNREG
LANC POWER ON
WAKE UP
DC
CONT
I/O
S484 BACK LIGHT
S/S MODE SW
S487 SIRCS
ON OFF
RMC OFF SW
STEADY SHOT MODEL
WIDE MODE MODEL
VTR DD ON
S488 BZZER
S489 PROGRAM AE
PROGRAM AE
STEADY
WIDE
ON - OFF - ON
S486
STEADY ON SW
WIDE ON SW
DIG 3V
BU480 (BUZZER)
BEEP
VIDEO LIGHT MODEL
V LIGHT ON
AUTO TIMER
Q310
LIGHT ON
D331
Q309, 311 SW
MT 5V
DIG 3V
VTR MODE SW
16

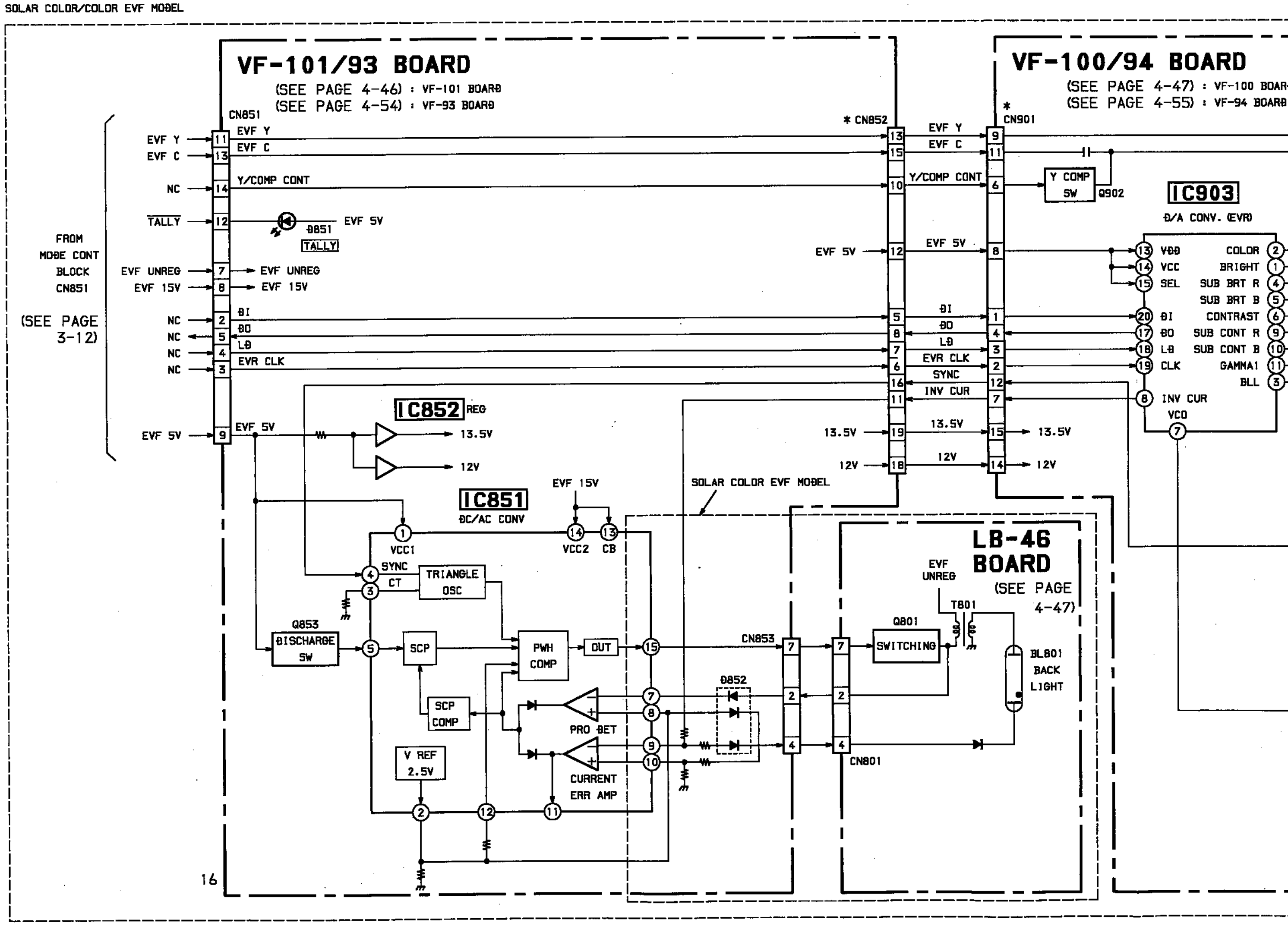

STEREO MODEL
J481
HEADPHONE
PS301
VTR UNREG
EVER 3V
BH480
LI BATT
CN480
HP R
HP L
43
45
HP R
HP L
CN300 ③
CN300 ①
FROM AUDIO BLOCK
(SEE PAGE 3-8)
MV RESET
MV STBY
CS MECAM
HI SI
HI SO
HI SCK
CC DOWN SW
PBV
31
32
35
37
36
38
33
34
CN300 ⑮
CN300 ⑭
CN300 ⑪
CN300 ⑨
CN300 ⑩
CN300 ⑧
CN300 ⑬
CN300 ⑫
TO/FROM SYSCON BLOCK
(SEE PAGE 3-9)
CAM DD ON
CAM HD
24
25
CN300 ㉒
CN300 ㉑
TO/FROM CAMERA BLOCK
(SEE PAGE 3-6)
REC VDW
REC VDB
DS VDW
EVF C
EVF Y
28
29
26
2
4
CN300 ⑱
CN300 ⑰
CN300 ⑳
CN300 (44)
CN300 (42)
TO/FROM VIDEO BLOCK
(SEE PAGE 3-8)
EVF 5V
CN481
D480 (TALLY)
LED DRIVER
TALLY LED
EVF UNREG
EVF 15V
EVF 5V
6
8
7
2
3
4
TALLY
TO EVF BLOCK
(SEE PAGE 3-13)
CN483
LCD SEG 00-15
LCD COM 1-3
LCD
LCD MODEL
CN482
LED VCC
LED GND
BL
EVER 3V
VTR UNREG
J480
LANC
CN480
VTR DD ON
23
TO POWER BLOCK
(SEE PAGE 3-19)
LIGHT ON
22
Q309, 311
SW
5V
DIG 3V
VTR MODE SW
41
VC-167 BOARD
CN300
24
5
CAM DD ON
Q301, 302
SW
D309-311
D713, 318
MT 5V
DIG 3V
LCD MODEL
VIDEO LIGHT MODEL
DD-80 BOARD
STBY R
FROM CN003 ①
Q013
SW
Q010, 012
SW
F001
FROM POWER BLOCK
Q009
SW
Q011
SW
CN003
W002
9
8
LCD UNREG
UNREG GND
5
4
1
2
TZ--5 BOARD
LAMP
CN651
JK-145 BOARD
CN061
S061
LUMP ON
LUMP OFF
ON
AUTO
OFF

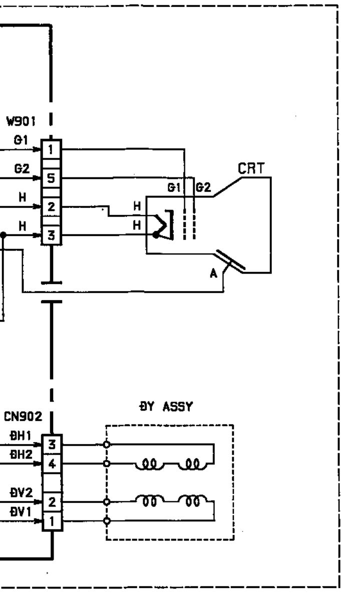
3-6. EVF BLOCK DIAGRAM


B/W EVF MODEL
VF-102 BOARD
(SEE PAGE 4-61)
IC901 ⑪
0.8Vp-p
IC901
AFC VIDEO AMP
IC901 ⑬ REC/PB
2.5Vp-p
IC901 ⑬ REC/PB
Q904 Ⓔ
10Vp-p
Q903
VIDEO AMP
Q904
VIDEO OUT
W901
G1
G2
H
CRT
T901 FBT
EVF 5V
* CN901
EVF Y
EVF VIDEO
SYNC SEP
H OSC
H DRIV
VIDEO MIX AMP
Q902
H OUT
V SYNC SEP
V OSC
V OUT
FROM MODE CONT BLOCK CN851
(SEE PAGE 3-12)
TALLY
D901
(TALLY)
EVF 5V
IC901 ③ REC/PB
2.8Vp-p
IC901 ⑤ REC/PB
2.8Vp-p
EVF 5V
Q901
HOLD DOWN
HLL
CN902
DH1
DH2
DV2
DV1
DY ASSY
A

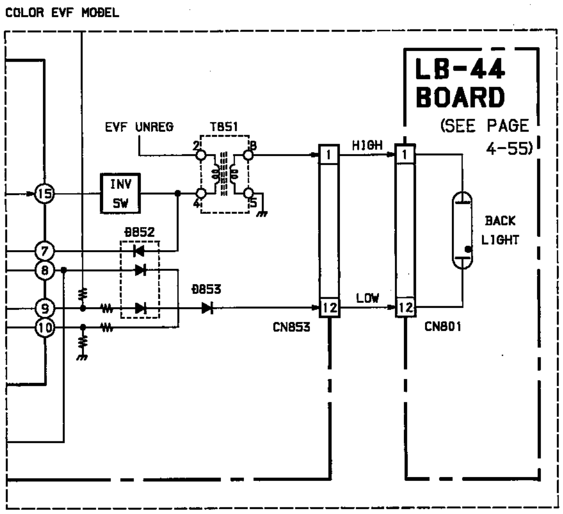
NOTE:
VF-101 BOARD:SOLAR COLOR EVF MODEL
VF-93 BOARD :COLOR EVF MODEL

NOTE:
VF-100 BOARD:SOLAR COLOR EVF MODEL
VF-94 BOARD :COLOR EVF MODEL


SOLAR COLOR/COLOR EVF MODEL
VF-101/93 BOARD
(SEE PAGE 4-46) : VF-101 BOARD
(SEE PAGE 4-54) : VF-93 BOARD
CN851
FROM MODE CONT BLOCK CN851
(SEE PAGE 3-12)
EVF Y
EVF C
NC
Y/COMP CONT
TALLY
D851
TALLY
EVF 5V
EVF UNREG
EVF 15V
DI
DO
LD
EVR CLK
EVF 5V
IC852 REG
13.5V
12V
IC851 DC/AC CONV
EVF 15V
VCC1
VCC2
CB
SYNC
CT
TRIANGLE OSC
Q853
DISCHARGE SW
SCP
SCP COMP
PWM COMP
OUT
PRO DET
CURRENT ERR AMP
V REF 2.5V
D852
CN853
SOLAR COLOR EVF MODEL
* CN852
SYNC
INV CUR
LB-46 BOARD
(SEE PAGE 4-47)
EVF UNREG
T801
Q801
SWITCHING
BL801 BACK LIGHT
CN801
VF-100/94 BOARD
(SEE PAGE 4-47) : VF-100 BOARD
(SEE PAGE 4-55) : VF-94 BOARD
* CN901
Y COMP SW
Q902
IC903
D/A CONV. (EVR)
VDD
VCC
SEL
DI
DO
LD
CLK
INV CUR
VCO
COLOR
BRIGHT
SUB BRT R
SUB BRT B
CONTRAST
SUB CONT R
SUB CONT B
GAMMA1
BLL
16


W901
G1
G2
H
H
CRT
G1
G2
A
CN902
DH1
DH2
DV2
DV1
DY ASSY

NOTE:
VF-100 BOARD:SOLAR COLOR EVF MODEL
VF-94 BOARD :COLOR EVF MODEL

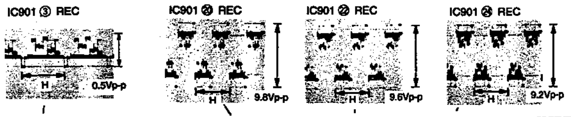

COLOR EVF MODEL
LB-44
BOARD
(SEE PAGE
4-55)
EVF UNREG
T851
INV
SW
D852
D853
HIGH
LOW
CN853
CN801
BACK
LIGHT

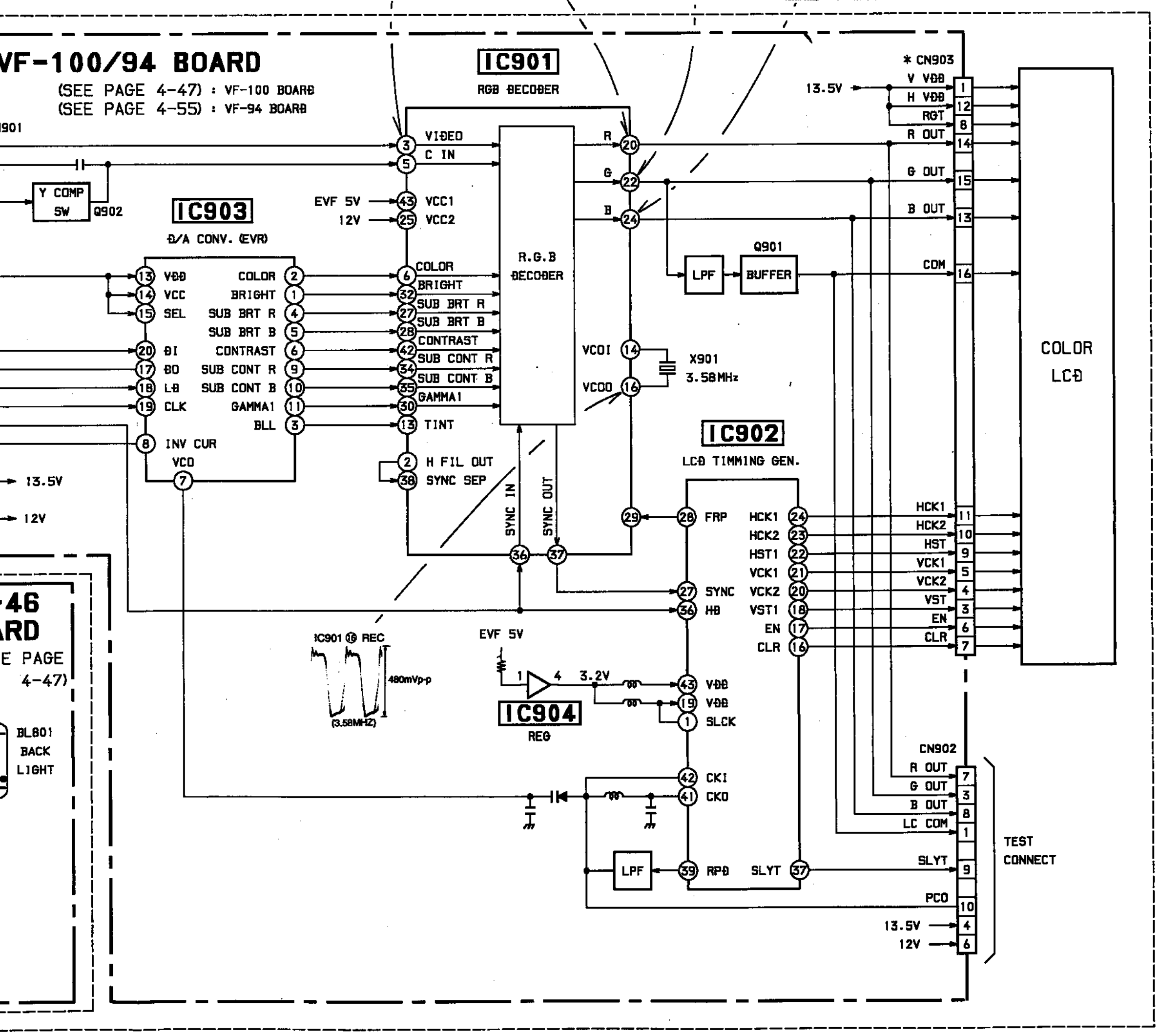
*CN852 (Pin NO)

VF-101 BOARD	VF-93 BOARD
13	5
15	4
10	9
12	7
5	14
8	11
7	12
6	13
16	3
11	8
19	1
18	2

*CN901 (Pin NO)

VF-100 BOARD	VF-94 BOARD
9	10
15	14
14	13



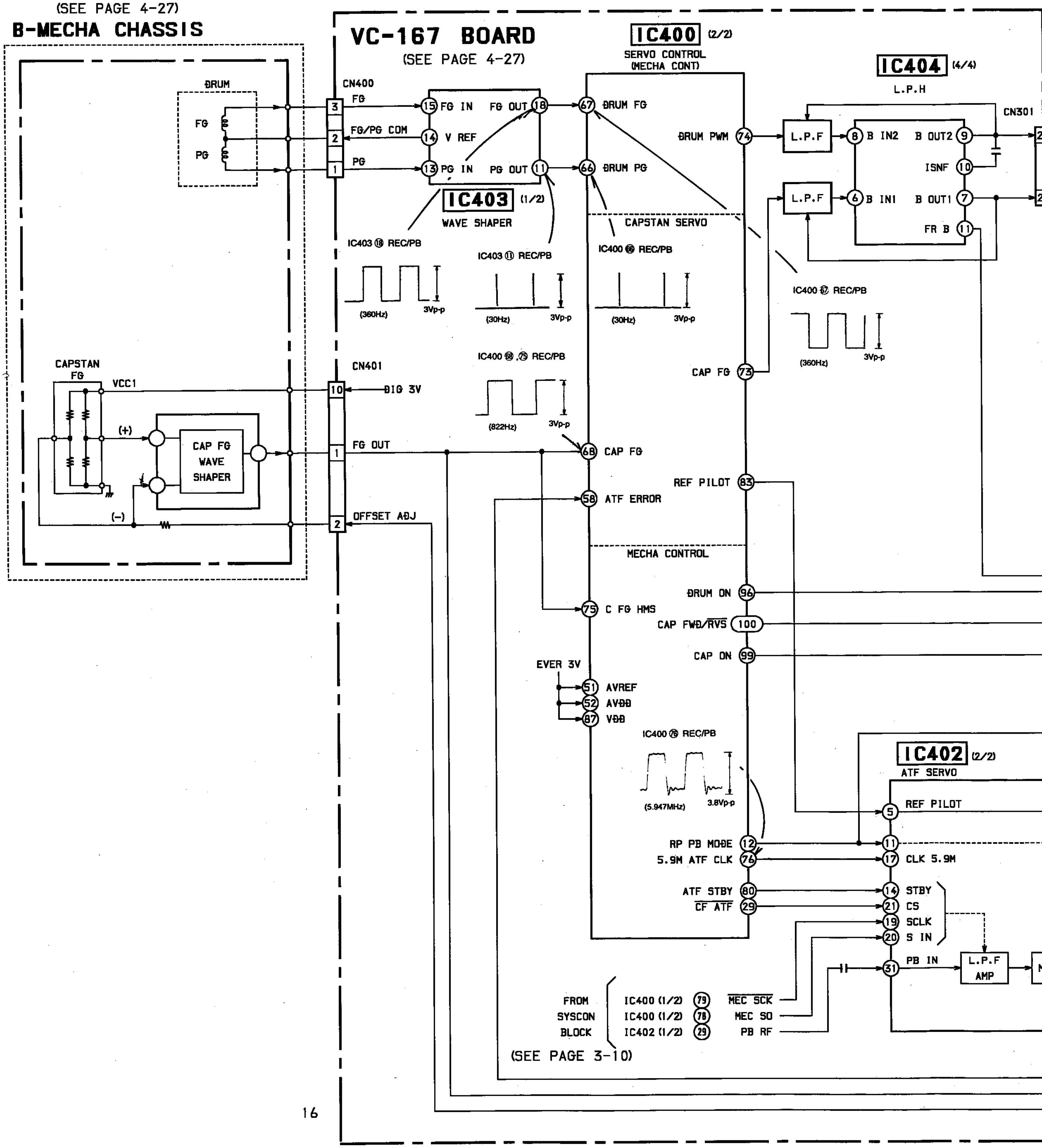

VF-100/94 BOARD
(SEE PAGE 4-47) : VF-100 BOARD
(SEE PAGE 4-55) : VF-94 BOARD
IC901
RGB DECODER
R.G.B DECODER
VIDEO
C IN
EVF 5V
12V
VCC1
VCC2
COLOR
BRIGHT
SUB BRT R
SUB BRT B
CONTRAST
SUB CONT R
SUB CONT B
GAMMA1
TINT
H FIL OUT
SYNC SEP
SYNC IN
SYNC OUT
VCOI
VCOO
X901
3.58MHz
Y COMP SW
Q902
IC903
D/A CONV. (EVR)
VDD
VCC
SEL
DI
DO
LD
CLK
INV CUR
VCO
COLOR
BRIGHT
SUB BRT R
SUB BRT B
CONTRAST
SUB CONT R
SUB CONT B
GAMMA1
BLL
13.5V
12V
LPF
BUFFER
Q901
*CN903
13.5V
V VDD
H VDD
RGT
R OUT
G OUT
B OUT
COM
COLOR LCD
IC902
LCD TIMING GEN.
FRP
SYNC
HD
VDD
VDD
SLCK
CKI
CKO
RPD
SLYT
HCK1
HCK2
HST1
VCK1
VCK2
VST1
EN
CLR
HCK1
HCK2
HST
VCK1
VCK2
VST
EN
CLR
IC901 ⑯ REC
480mVp-p
(3.58MHZ)
EVF 5V
3.2V
IC904
REG
LPF
CN902
R OUT
G OUT
B OUT
LC COM
SLYT
PCO
13.5V
12V
TEST CONNECT
-46
ARD
E PAGE
4-47)
BL801
BACK
LIGHT

*CN903 (Pin NO)

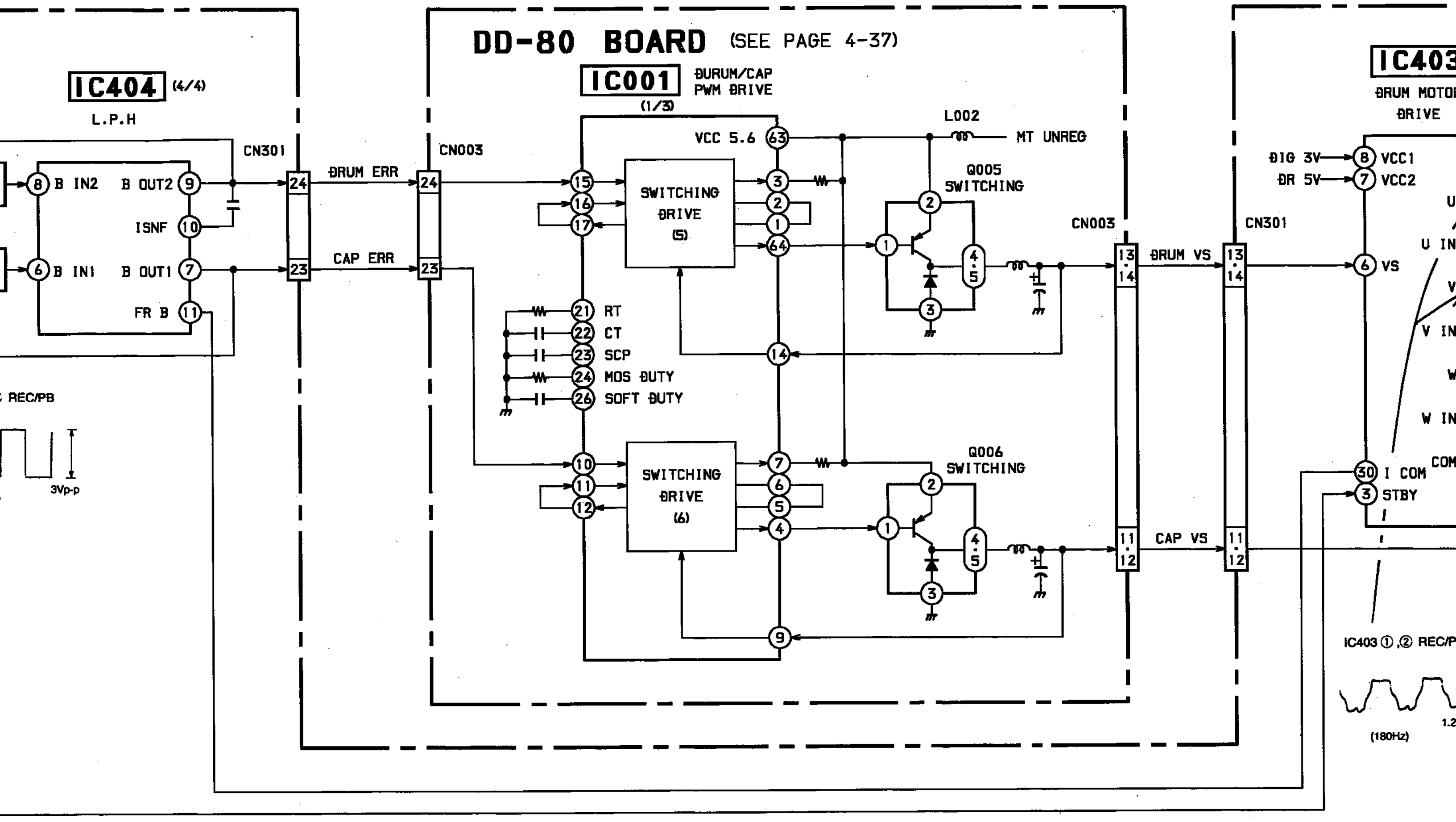
VF-100 BOARD	VF-94 BOARD
1	16
12	5
8	9
14	3
15	2
13	4
16	1
11	6
10	7
9	8
5	12
4	13
3	14
6	11
7	10

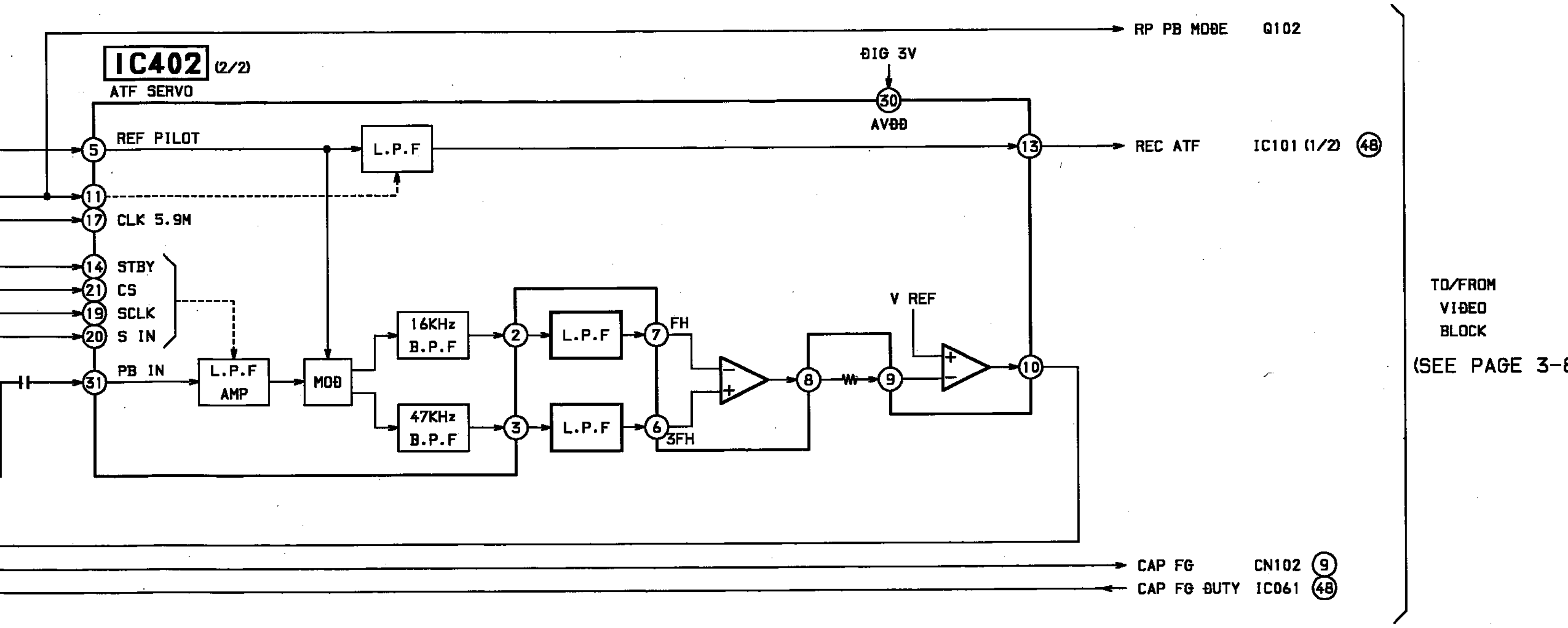
3-7. SERVO BLOCK DIAGRAM

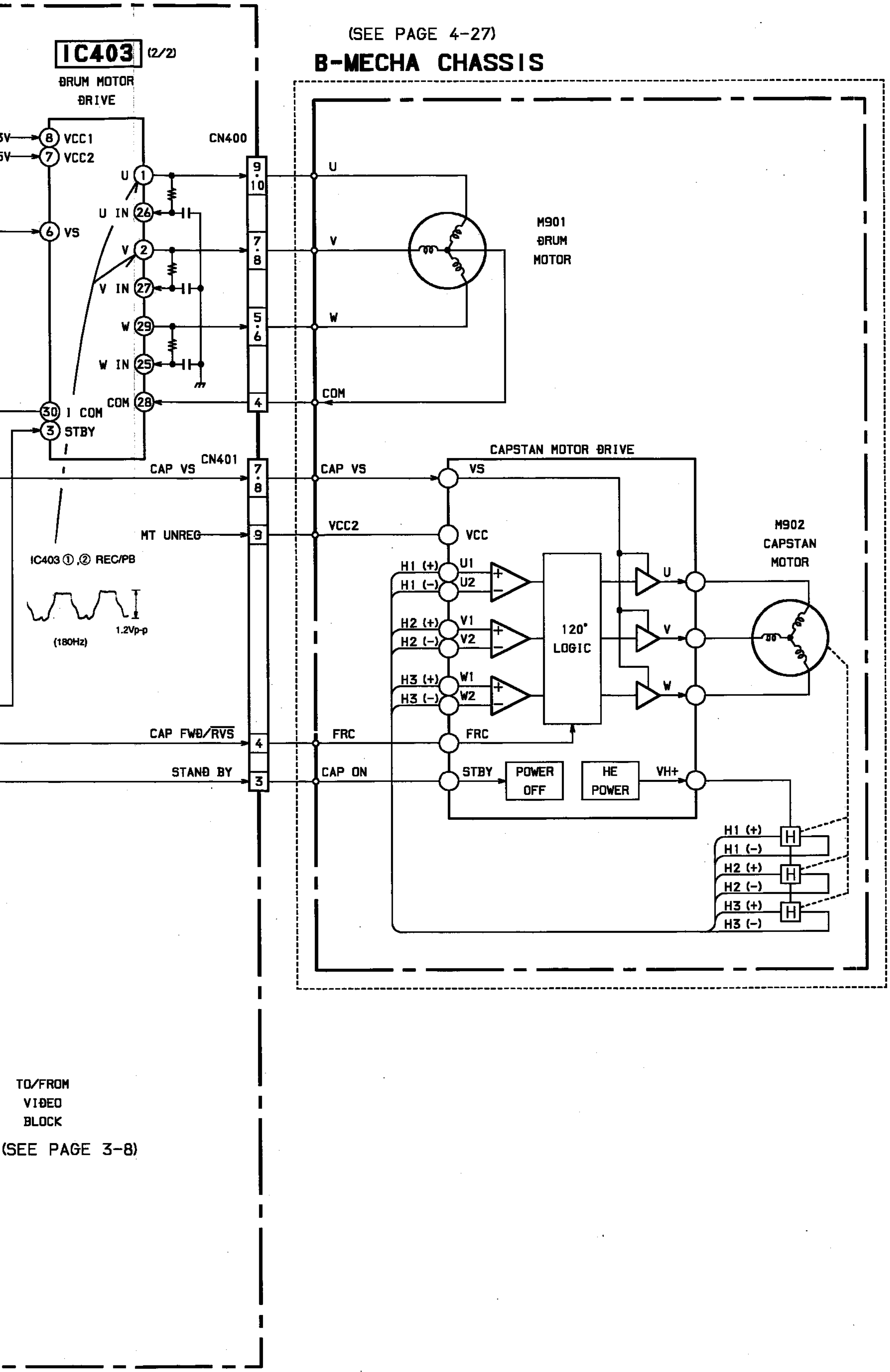
(SEE PAGE 4-27)



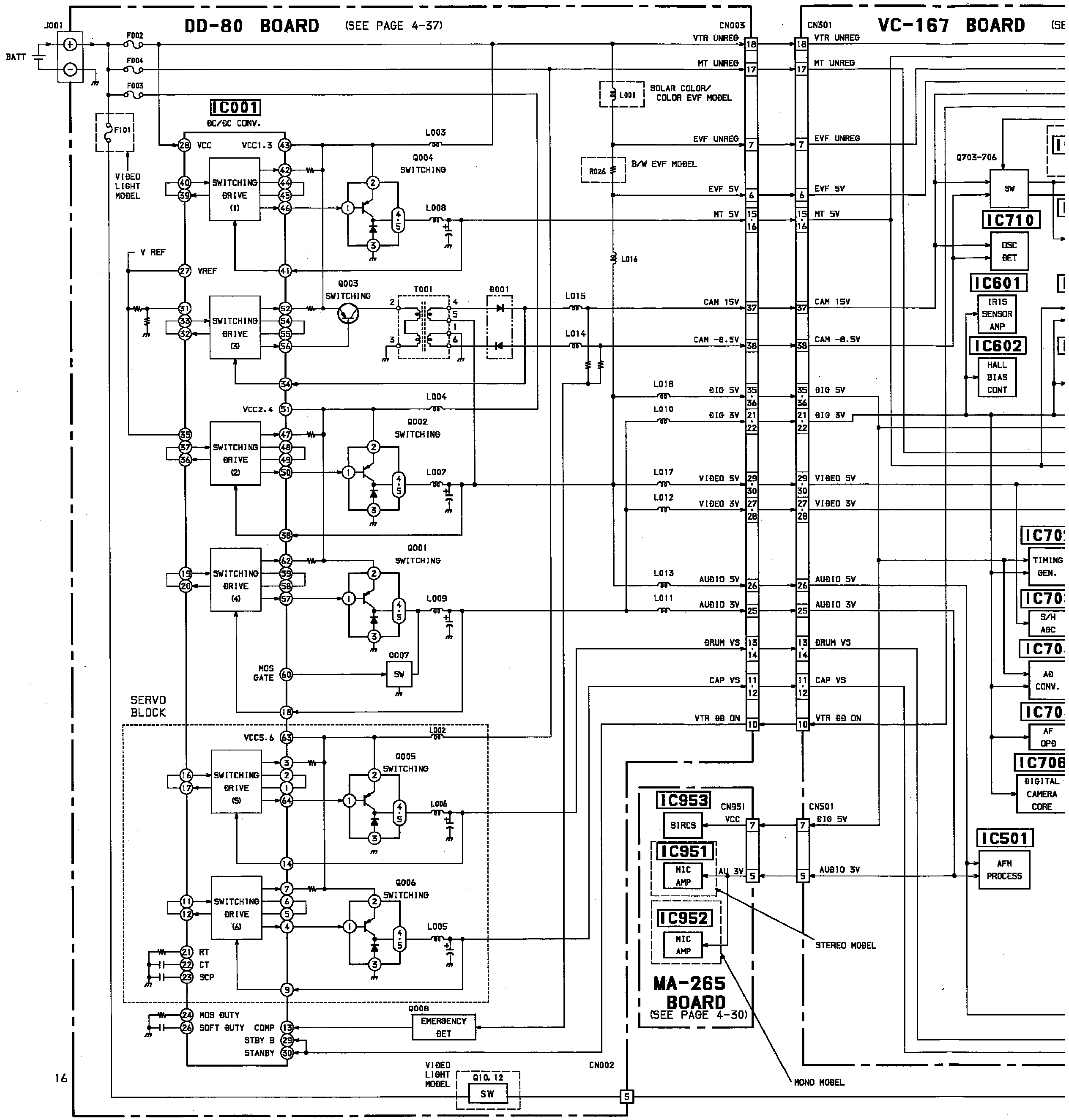
B-MECHA CHASSIS
DRUM
FG
PG
CAPSTAN FG
VCC1
(+)
(−)
CAP FG WAVE SHAPER
VC-167 BOARD
(SEE PAGE 4-27)
CN400
FG
FG/PG COM
PG
3
2
1
IC403 (1/2)
WAVE SHAPER
15 FG IN
14 V REF
13 PG IN
FG OUT 18
PG OUT 11
IC403 ⑱ REC/PB
(360Hz)
3Vp-p
IC403 ⑪ REC/PB
(30Hz)
3Vp-p
IC400 (2/2)
SERVO CONTROL (MECHA CONT)
67 DRUM FG
66 DRUM PG
DRUM PWM 74
CAPSTAN SERVO
IC400 ⑥⑥ REC/PB
(30Hz)
3Vp-p
IC400 ⑥⑦ REC/PB
(360Hz)
3Vp-p
CAP FG 73
CN401
10
DIG 3V
1
FG OUT
2
OFFSET ADJ
IC400 ⑥⑧, ⑦⑤ REC/PB
(822Hz)
3Vp-p
68 CAP FG
58 ATF ERROR
REF PILOT 83
MECHA CONTROL
DRUM ON 96
75 C FG HMS
CAP FWD/RVS 100
CAP ON 99
EVER 3V
51 AVREF
52 AVDD
87 VDD
IC400 ⑦⑥ REC/PB
(5.947MHz)
3.8Vp-p
RP PB MODE 12
5.9M ATF CLK 76
ATF STBY 80
CF ATF 29
IC404 (4/4)
L.P.H
L.P.F
L.P.F
8 B IN2
B OUT2 9
ISNF 10
6 B IN1
B OUT1 7
FR B 11
CN301
IC402 (2/2)
ATF SERVO
5 REF PILOT
11
17 CLK 5.9M
14 STBY
21 CS
19 SCLK
20 S IN
31 PB IN
L.P.F AMP
FROM SYSCON BLOCK
IC400 (1/2) ⑦⑨ MEC SCK
IC400 (1/2) ⑦⑧ MEC SO
IC402 (1/2) ㉙ PB RF
(SEE PAGE 3-10)

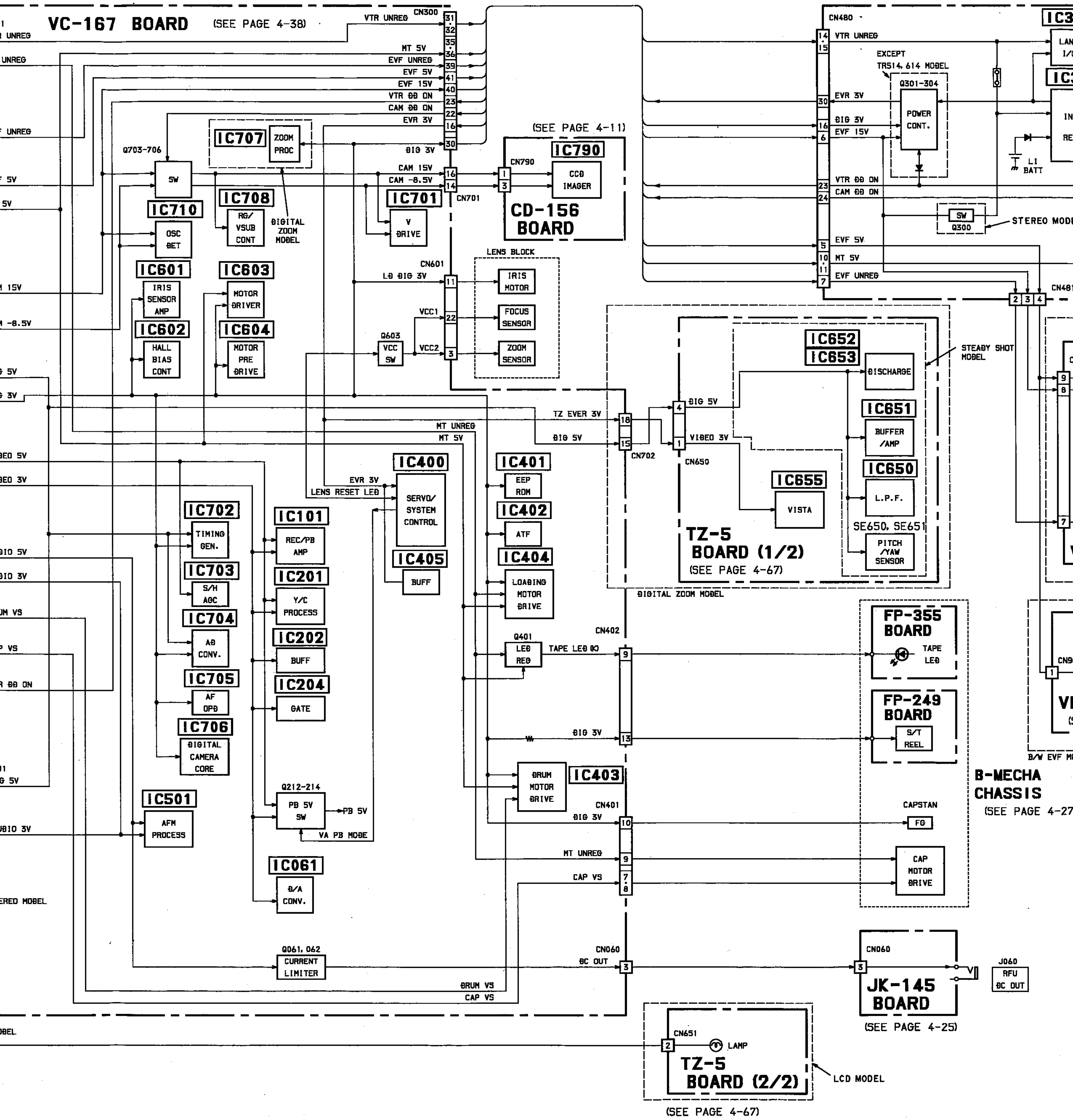

DD-80 BOARD (SEE PAGE 4-37)
IC404 (4/4)
L.P.H
B IN2
B OUT2
ISNF
B IN1
B OUT1
FR B
CN301
DRUM ERR
CAP ERR
CN003
IC001 DURUM/CAP PWM DRIVE (1/3)
VCC 5.6
SWITCHING DRIVE (5)
SWITCHING DRIVE (6)
RT
CT
SCP
MOS DUTY
SOFT DUTY
L002
MT UNREG
Q005 SWITCHING
Q006 SWITCHING
CN003
DRUM VS
CAP VS
CN301
IC403
DRUM MOTOR DRIVE
DIG 3V
DR 5V
VCC1
VCC2
VS
U IN
V IN
W IN
I COM
STBY
COM
REC/PB
3Vp-p
IC403 ①,② REC/P
(180Hz)
1.2

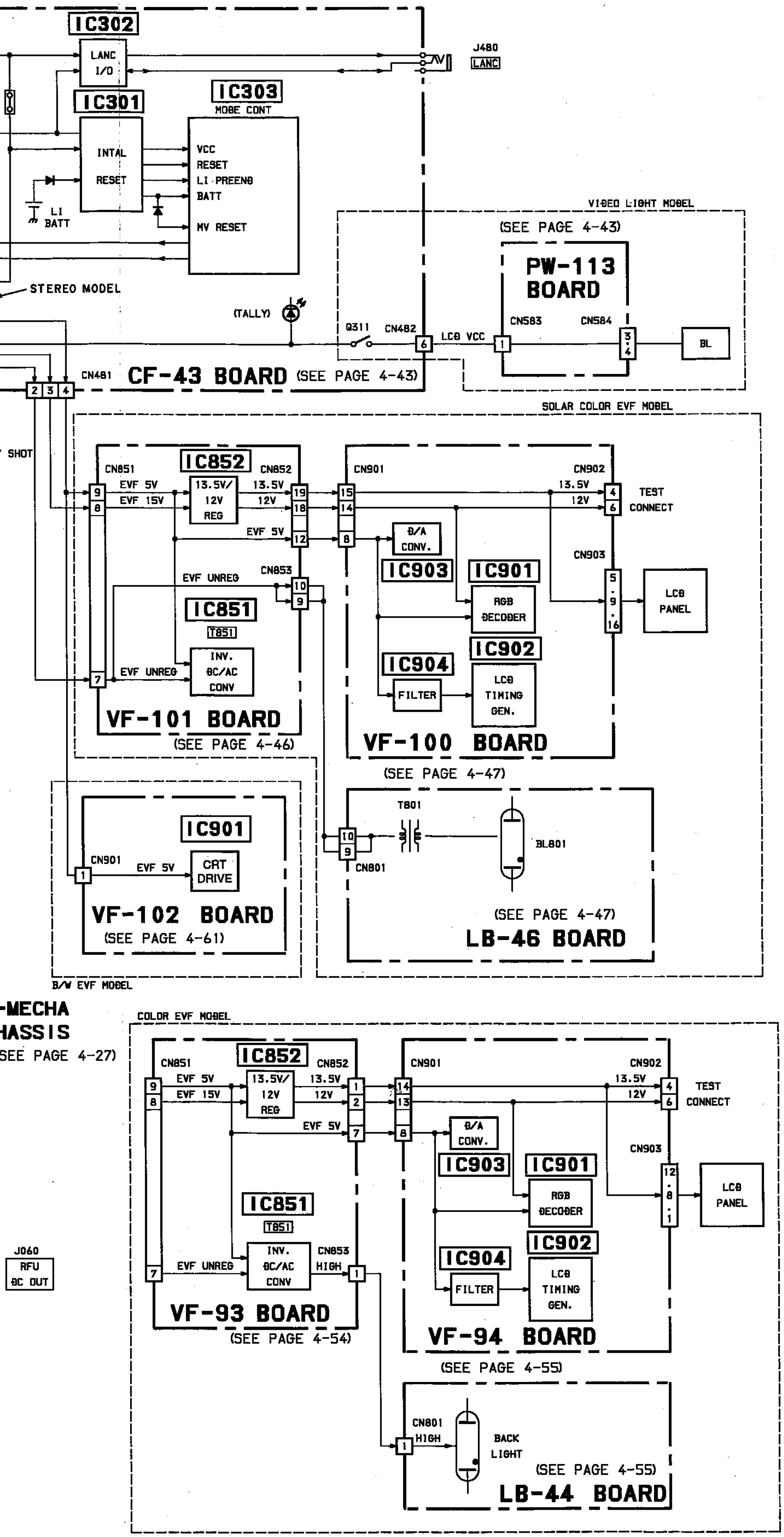

IC402 (2/2)
ATF SERVO
DIG 3V
AVDD
REF PILOT
L.P.F
CLK 5.9M
STBY
CS
SCLK
S IN
PB IN
L.P.F AMP
MOD
16KHz B.P.F
47KHz B.P.F
L.P.F
L.P.F
FH
3FH
V REF
RP PB MODE
Q102
REC ATF
IC101 (1/2) ㊽
CAP FG
CN102 ⑨
CAP FG DUTY
IC061 ㊽
TO/FROM VIDEO BLOCK
(SEE PAGE 3-8

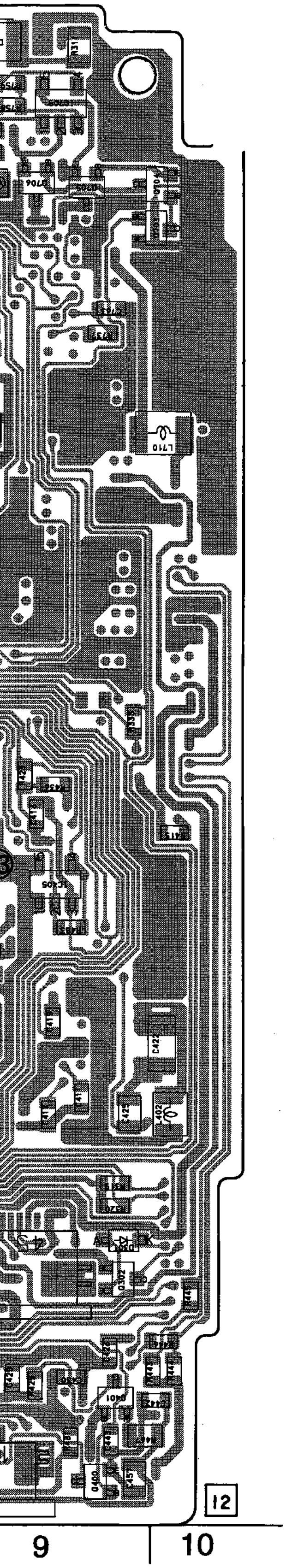

IC403 (2/2)
DRUM MOTOR DRIVE
VCC1
VCC2
U
U IN
VS
V
V IN
W
W IN
COM
I COM
STBY
CN400
CN401
CAP VS
MT UNREG
IC403 ①,② REC/PB
1.2Vp-p
(180Hz)
CAP FWD/RVS
STAND BY
TO/FROM VIDEO BLOCK
(SEE PAGE 3-8)
(SEE PAGE 4-27)
B-MECHA CHASSIS
M901 DRUM MOTOR
CAP VS
VCC2
FRC
CAP ON
CAPSTAN MOTOR DRIVE
VS
VCC
H1 (+)
H1 (−)
U1
U2
H2 (+)
H2 (−)
V1
V2
H3 (+)
H3 (−)
W1
W2
120° LOGIC
FRC
STBY
POWER OFF
HE POWER
VH+
M902 CAPSTAN MOTOR
H

3-8. POWER BLOCK DIAGRAM

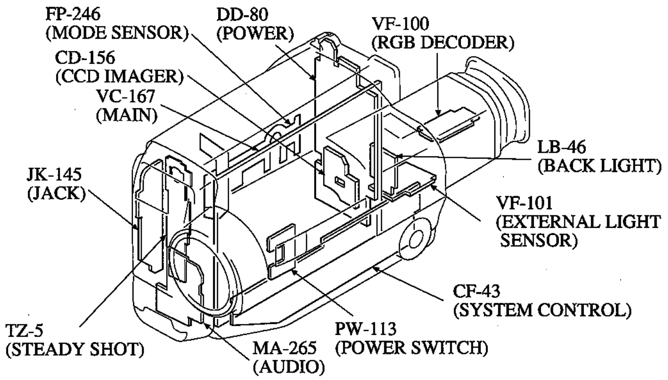

DD-80 BOARD
(SEE PAGE 4-37)
J001
BATT
F002
F004
F003
F101
VIDEO LIGHT MODEL
IC001
DC/DC CONV.
VCC
VCC1.3
SWITCHING DRIVE (1)
SWITCHING DRIVE (3)
SWITCHING DRIVE (2)
SWITCHING DRIVE (4)
SWITCHING DRIVE (5)
SWITCHING DRIVE (6)
V REF
VREF
VCC2.4
VCC5.6
MOS GATE
SERVO BLOCK
RT
CT
SCP
MOS DUTY
SOFT DUTY
COMP
STBY B
STANBY
L003
L008
L004
L007
L009
L002
L006
L005
Q004 SWITCHING
Q003 SWITCHING
Q002 SWITCHING
Q001 SWITCHING
Q005 SWITCHING
Q006 SWITCHING
Q007
SW
Q008
EMERGENCY DET
T001
D001
L015
L014
L001
SOLAR COLOR/ COLOR EVF MODEL
R026
B/W EVF MODEL
L016
L018
L010
L017
L012
L013
L011
VIDEO LIGHT MODEL
Q10, 12
SW
CN002
16
CN003
VTR UNREG
MT UNREG
EVF UNREG
EVF 5V
MT 5V
CAM 15V
CAM -8.5V
DIG 5V
DIG 3V
VIDEO 5V
VIDEO 3V
AUDIO 5V
AUDIO 3V
DRUM VS
CAP VS
VTR DD ON
CN301
VC-167 BOARD
Q703-706
SW
IC710
OSC DET
IC601
IRIS SENSOR AMP
IC602
HALL BIAS CONT
IC70
TIMING GEN.
IC70
S/H AGC
IC70
AD CONV.
IC70
AF OPD
IC706
DIGITAL CAMERA CORE
IC501
AFM PROCESS
CN501
DIG 5V
AUDIO 3V
IC953
SIRCS
CN951
VCC
AU 3V
IC951
MIC AMP
IC952
MIC AMP
MA-265 BOARD
(SEE PAGE 4-30)
STEREO MODEL
MONO MODEL


VC-167 BOARD
(SEE PAGE 4-38)
CN300
VTR UNREG
MT 5V
EVF UNREG
EVF 5V
EVF 15V
VTR DD ON
CAM DD ON
EVR 3V
DIG 3V
CAM 15V
CAM -8.5V
CN701
Q703-706
SW
IC707
ZOOM PROC
IC708
RG/ VSUB CONT
DIGITAL ZOOM MODEL
IC701
V DRIVE
IC710
OSC DET
IC601
IRIS SENSOR AMP
IC603
MOTOR DRIVER
IC602
HALL BIAS CONT
IC604
MOTOR PRE DRIVE
(SEE PAGE 4-11)
IC790
CCD IMAGER
CN790
CD-156 BOARD
LENS BLOCK
CN601
LD DIG 3V
IRIS MOTOR
VCC1
FOCUS SENSOR
Q603
VCC SW
VCC2
ZOOM SENSOR
TZ EVER 3V
DIG 5V
MT UNREG
MT 5V
CN702
EVR 3V
LENS RESET LED
IC400
SERVO/ SYSTEM CONTROL
IC405
BUFF
IC401
EEP ROM
IC402
ATF
IC404
LOADING MOTOR DRIVE
IC702
TIMING GEN.
IC703
S/H AGC
IC704
AD CONV.
IC705
AF OPD
IC706
DIGITAL CAMERA CORE
IC101
REC/PB AMP
IC201
Y/C PROCESS
IC202
BUFF
IC204
GATE
IC501
AFM PROCESS
Q212-214
PB 5V SW
PB 5V
VA PB MODE
IC061
D/A CONV.
Q061, 062
CURRENT LIMITER
DRUM VS
CAP VS
Q401
LED REG
TAPE LED (K)
CN402
DIG 3V
DRUM MOTOR DRIVE
IC403
CN401
DIG 3V
MT UNREG
CAP VS
CN060
DC OUT
CN480
VTR UNREG
EXCEPT TR514, 614 MODEL
Q301-304
POWER CONT.
EVR 3V
DIG 3V
EVF 15V
LI BATT
VTR DD ON
CAM DD ON
SW Q300
STEREO MODE
EVF 5V
MT 5V
EVF UNREG
CN481
IC652
IC653
DISCHARGE
STEADY SHOT MODEL
IC651
BUFFER /AMP
DIG 5V
VIDEO 3V
CN650
IC650
L.P.F.
IC655
VISTA
SE650, SE651
PITCH /YAW SENSOR
TZ-5 BOARD (1/2)
(SEE PAGE 4-67)
DIGITAL ZOOM MODEL
FP-355 BOARD
TAPE LED
FP-249 BOARD
S/T REEL
B-MECHA CHASSIS
(SEE PAGE 4-27
CAPSTAN
FG
CAP MOTOR DRIVE
CN060
JK-145 BOARD
(SEE PAGE 4-25)
J060
RFU DC OUT
CN651
LAMP
TZ-5 BOARD (2/2)
(SEE PAGE 4-67)
LCD MODEL
B/W EVF M
IC3
LAN I/O
IN RE
CN9
VI
R UNREG
UNREG
F UNREG
F 5V
5V
M 15V
M -8.5V
G 5V
G 3V
DEO 5V
DEO 3V
DIO 5V
DIO 3V
UM VS
P VS
R DD ON
G 5V
UDIO 3V
EREO MODEL
DEL

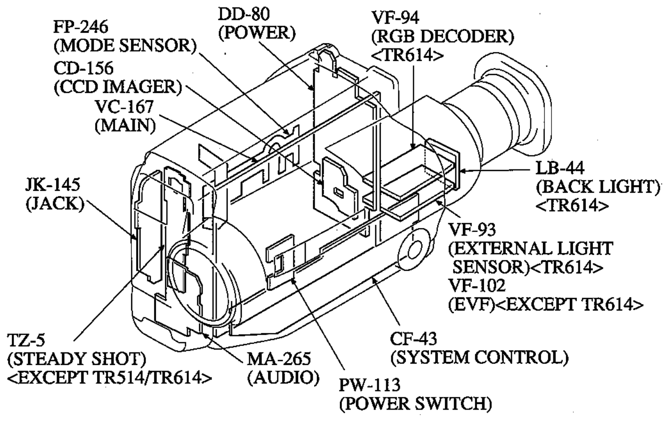

IC302
LANC I/O
J480
LANC
IC301
INTAL RESET
IC303
MODE CONT
VCC
RESET
LI PREEND
BATT
MV RESET
LI BATT
STEREO MODEL
(TALLY)
Q311
CN482
CN481
CF-43 BOARD (SEE PAGE 4-43)
VIDEO LIGHT MODEL
(SEE PAGE 4-43)
PW-113 BOARD
CN583
CN584
LCD VCC
BL
SOLAR COLOR EVF MODEL
SHOT
CN851
IC852
13.5V/ 12V REG
CN852
EVF 5V
EVF 15V
13.5V
12V
EVF UNREG
CN853
IC851
T851
INV. DC/AC CONV
VF-101 BOARD
(SEE PAGE 4-46)
CN901
CN902
TEST CONNECT
D/A CONV.
IC903
IC901
RGB DECODER
CN903
LCD PANEL
IC904
FILTER
IC902
LCD TIMING GEN.
VF-100 BOARD
(SEE PAGE 4-47)
IC901
CRT DRIVE
VF-102 BOARD
(SEE PAGE 4-61)
B/W EVF MODEL
T801
BL801
CN801
(SEE PAGE 4-47)
LB-46 BOARD
-MECHA
HASSIS
SEE PAGE 4-27)
COLOR EVF MODEL
CN851
IC852
13.5V/ 12V REG
CN852
EVF 5V
EVF 15V
EVF UNREG
IC851
T851
INV. DC/AC CONV
CN853
HIGH
VF-93 BOARD
(SEE PAGE 4-54)
CN901
CN902
TEST CONNECT
D/A CONV.
IC903
IC901
RGB DECODER
CN903
LCD PANEL
IC904
FILTER
IC902
LCD TIMING GEN.
VF-94 BOARD
(SEE PAGE 4-55)
CN801
HIGH
BACK LIGHT
(SEE PAGE 4-55)
LB-44 BOARD
J060
RFU DC OUT



TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
MA-265
(AUDIO)
PW-113
(POWER SWITCH)

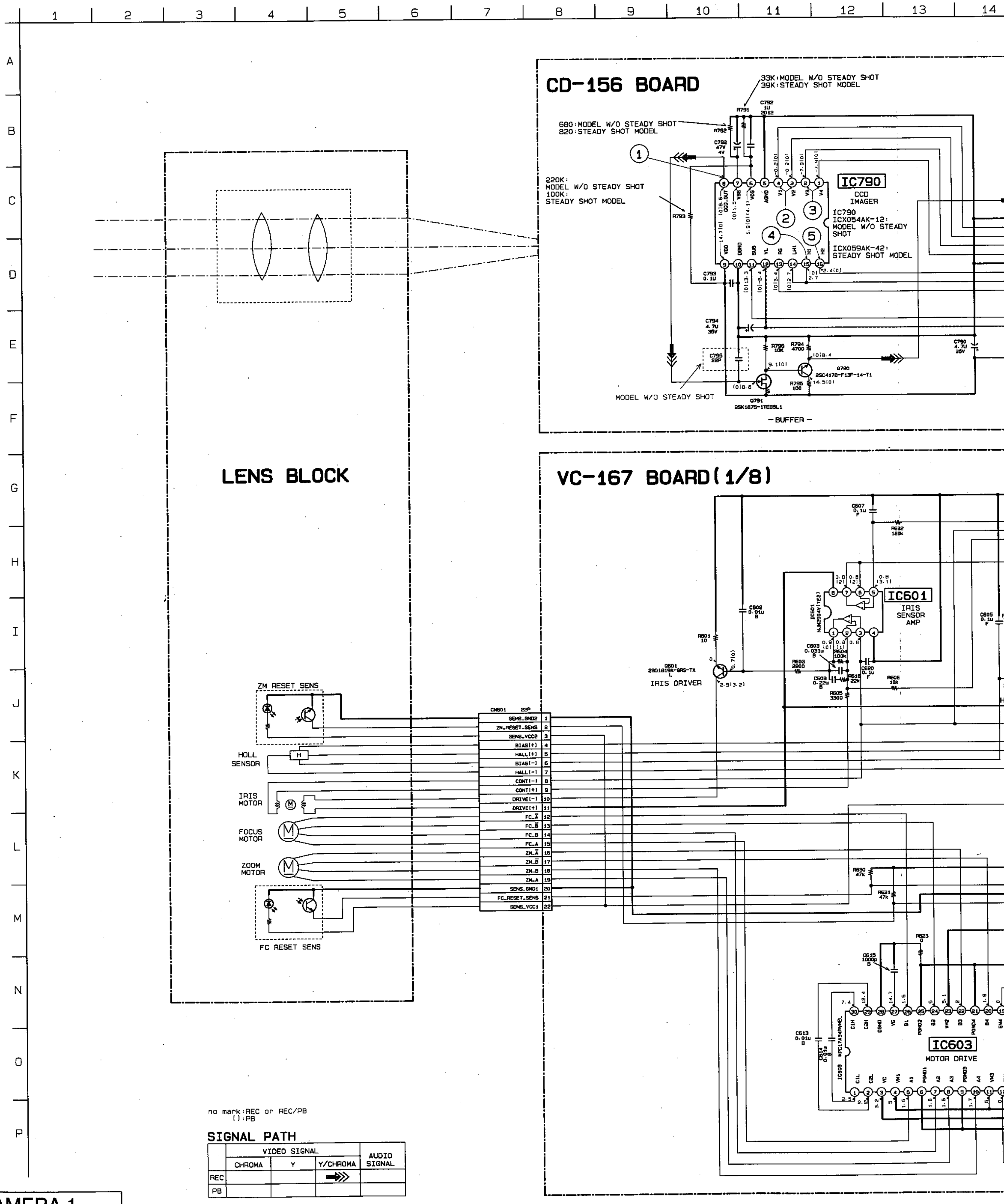
TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

VC-167 (CAMERA 1) , CD-156 (CCD IMAGER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS

• See page 4-7 for VC-167 BOARD p

— Ref. No. VC-167 Board; 1,000 Series, CD-156 Board; 2,000 Series —


1
2
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9
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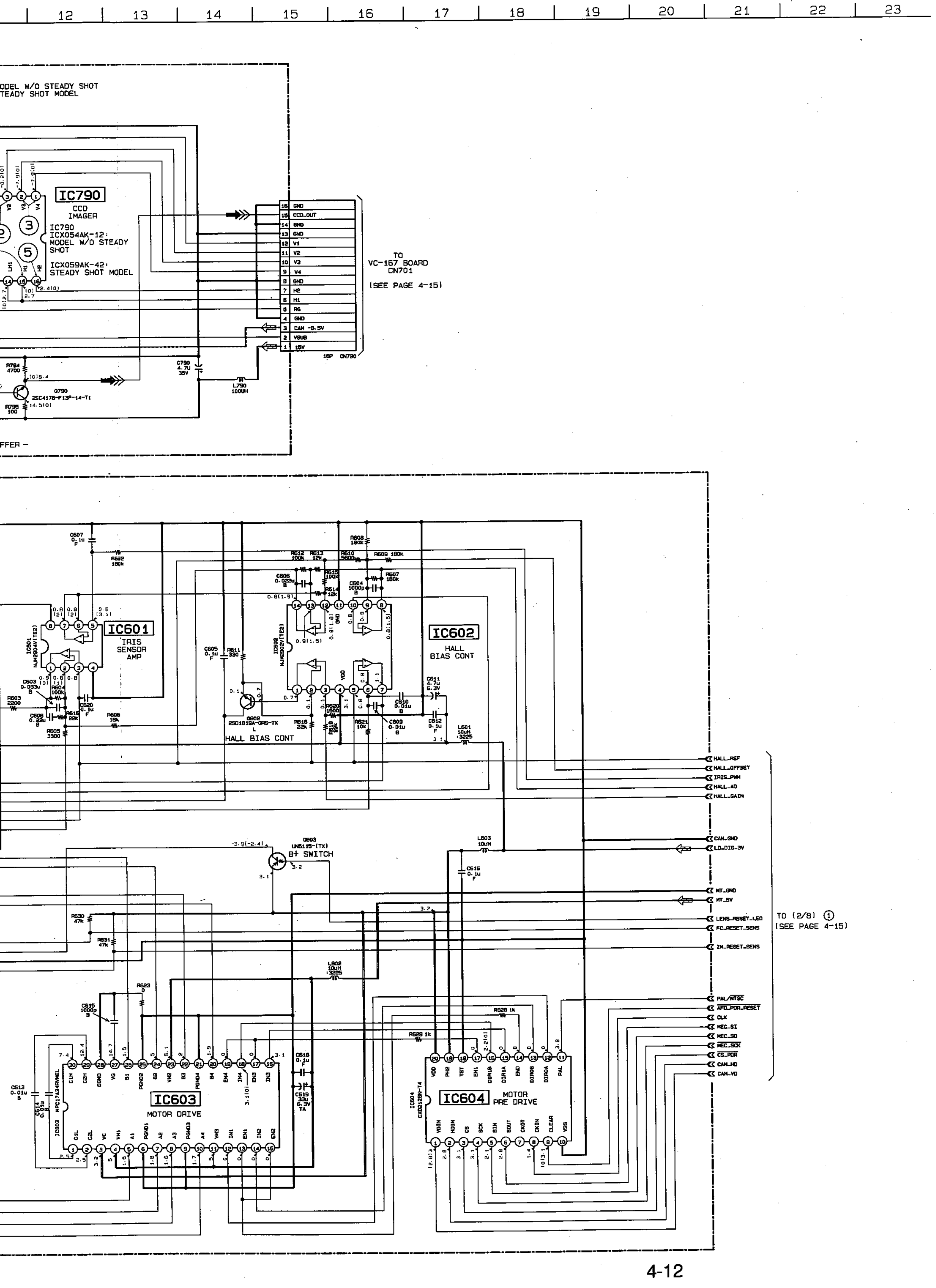
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
CD-156 BOARD
33K:MODEL W/O STEADY SHOT
39K:STEADY SHOT MODEL
R791
C792
1U
2012
680:MODEL W/O STEADY SHOT
820:STEADY SHOT MODEL
R792
C792
47V
4V
①
220K:
MODEL W/O STEADY SHOT
100K:
STEADY SHOT MODEL
R793
CCD_OUT
VSS
VGG
AGND
V1
V2
V3
V4
VDD
DGND
SUB
VL
RG
LH1
H1
H2
-0.2(0)
-0.2(0)
-7.9(0)
-7.9(0)
(0)8.6
(0)1.5
1.9(0)(4.1)
14.7(0)
(0)13.3
(0)-8.4
(0)13.4
(0)2.7
(0)
2.7
2.4(0)
②
③
④
⑤
IC790
CCD
IMAGER
IC790
ICX054AK-12:
MODEL W/O STEADY
SHOT
ICX059AK-42:
STEADY SHOT MODEL
C793
0.1U
C794
4.7U
35V
C795
22P
R796
10K
R794
4700
(0)8.4
9.1(0)
Q790
2SC4178-F13F-14-T1
R795
100
14.5(0)
(0)8.6
Q791
2SK1875-1TE85L1
C790
4.7U
35V
MODEL W/O STEADY SHOT
— BUFFER —
LENS BLOCK
ZM RESET SENS
HOLL
SENSOR
H
IRIS
MOTOR
M
FOCUS
MOTOR
M
ZOOM
MOTOR
M
FC RESET SENS
CN601 22P
SENS_GND2 1
ZM_RESET_SENS 2
SENS_VCC2 3
BIAS(+) 4
HALL(+) 5
BIAS(-) 6
HALL(-) 7
CONT(-) 8
CONT(+) 9
DRIVE(-) 10
DRIVE(+) 11
FC_A̅ 12
FC_B̅ 13
FC_B 14
FC_A 15
ZM_A̅ 16
ZM_B̅ 17
ZM_B 18
ZM_A 19
SENS_GND1 20
FC_RESET_SENS 21
SENS_VCC1 22
VC-167 BOARD(1/8)
C607
0.1u
F
R632
180k
C602
0.01u
B
R601
10
Q601
2SD1819A-QRS-TX
L
IRIS DRIVER
0
0.7(0)
2.5(3.2)
R603
2200
C603
0.033u
B
R604
100k
C608
0.22u
B
R616
22k
R605
3300
C620
0.1u
F
R606
18k
0.8 (2)
0.8 (2)
0.8 (3.1)
0.9 (0)
0.8 (1)
0.8
IC601
NJM2904V(TE2)
IC601
IRIS
SENSOR
AMP
C605
0.1u
F
R630
47k
R631
47k
R623
0
C615
1000p
B
C613
0.01u
B
C614
0.01u
B
IC603 MPC17A34RVMEL
C1H
C2H
DGND
VG
B1
PGND2
B2
VM2
B3
PGND4
B4
EN4
C1L
C2L
VC
VM1
A1
PGND1
A2
A3
PGND3
A4
VM3
7.4
12.4
14.7
1.5
5
5.1
2
1.9
0
2.5
2.5
3.2
5
1.6
1.8
1.6
1.7
5
0
IC603
MOTOR DRIVE

no mark:REC or REC/PB
( ):PB

SIGNAL PATH

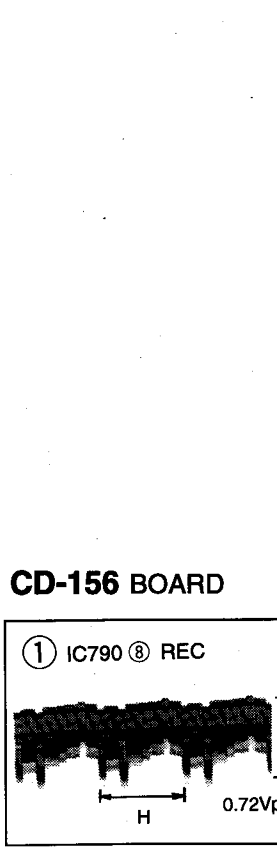
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡》	
PB				

e page 4-7 for VC-167 BOARD printed wiring board.



12
13
14
15
16
17
18
19
20
21
22
23
ODEL W/O STEADY SHOT
TEADY SHOT MODEL
IC790
CCD IMAGER
IC790
ICX054AK-12: MODEL W/O STEADY SHOT
ICX059AK-42: STEADY SHOT MODEL
16 GND
15 CCD_OUT
14 GND
13 GND
12 V1
11 V2
10 V3
9 V4
8 GND
7 H2
6 H1
5 RG
4 GND
3 CAM -8.5V
2 VSUB
1 15V
16P CN790
TO VC-167 BOARD CN701
(SEE PAGE 4-15)
R794 4700
Q790 2SC4178-F13F-14-T1
R795 100
C790 4.7U 35V
L790 100UH
FFER –
IC601
IRIS SENSOR AMP
IC602
HALL BIAS CONT
Q602 2SD1819A-QRS-TX
HALL BIAS CONT
L601 10UH
HALL_REF
HALL_OFFSET
IRIS_PWM
HALL_AD
HALL_GAIN
Q603 UN5115-(TX)
B+ SWITCH
L603
C616 0.1u
CAM_GND
LD_DIG-3V
MT_GND
MT_5V
LENS_RESET_LED
FC_RESET_SENS
ZM_RESET_SENS
TO (2/8) ①
(SEE PAGE 4-15)
PAL/NTSC
AFD_POR_RESET
CLK
MEC_SI
MEC_SO
MEC_SCK
CS_POR
CAM_HD
CAM_VD
L602 10UH
IC603
MOTOR DRIVE
IC604
MOTOR PRE DRIVE

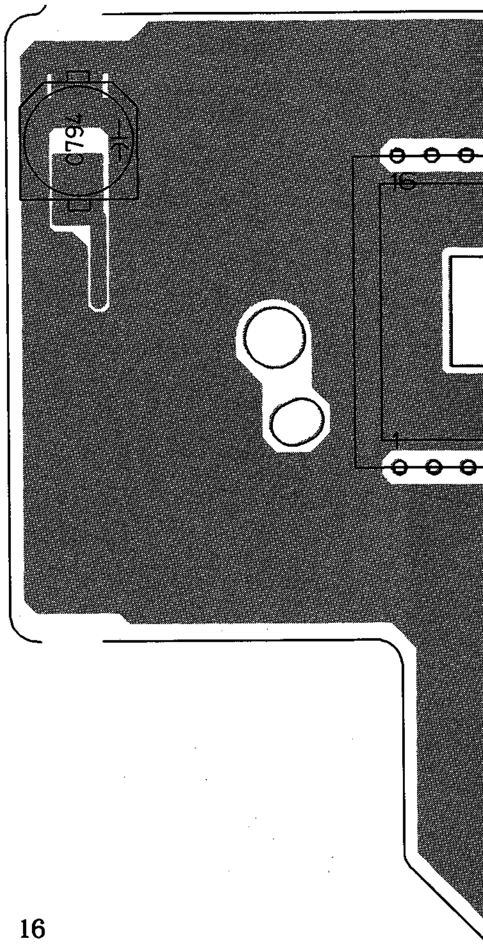
CD-156 BOARD



Precautions Upon Replacing CCD Imager

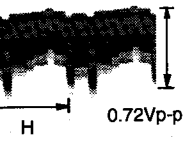
- The CD-156 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC. In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

CD-156 BOARD (SIDE A)

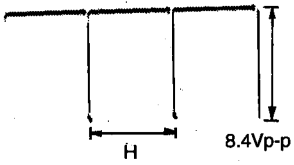


BOARD

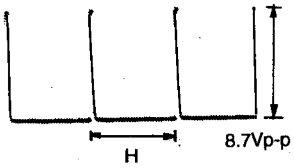
⑧ REC



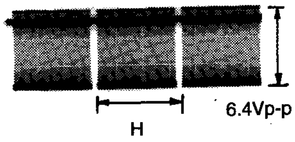
② IC790 ③,④ REC



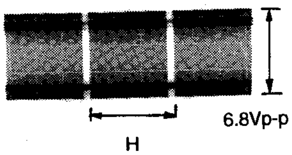
③ IC790 ①,② REC



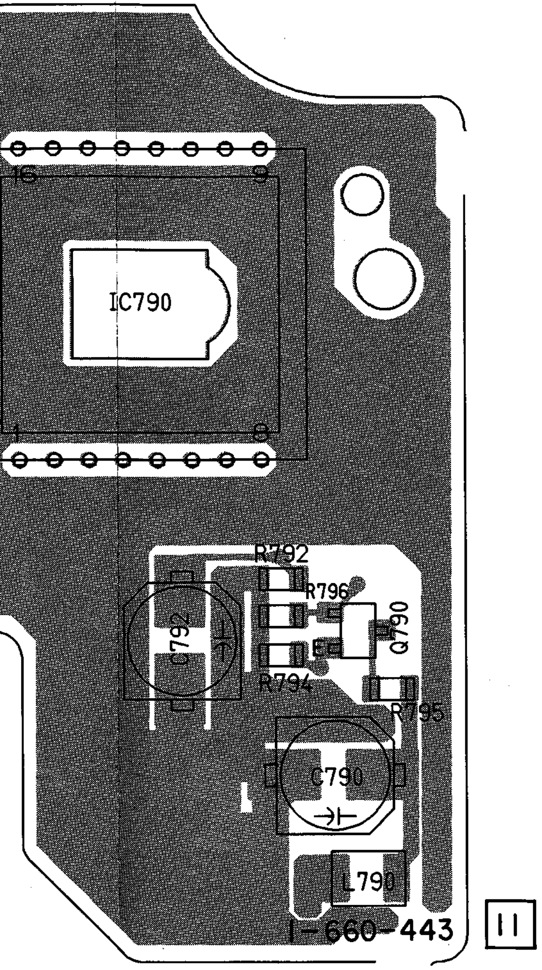
④ IC790 ⑮ REC



⑤ IC790 ⑯ REC

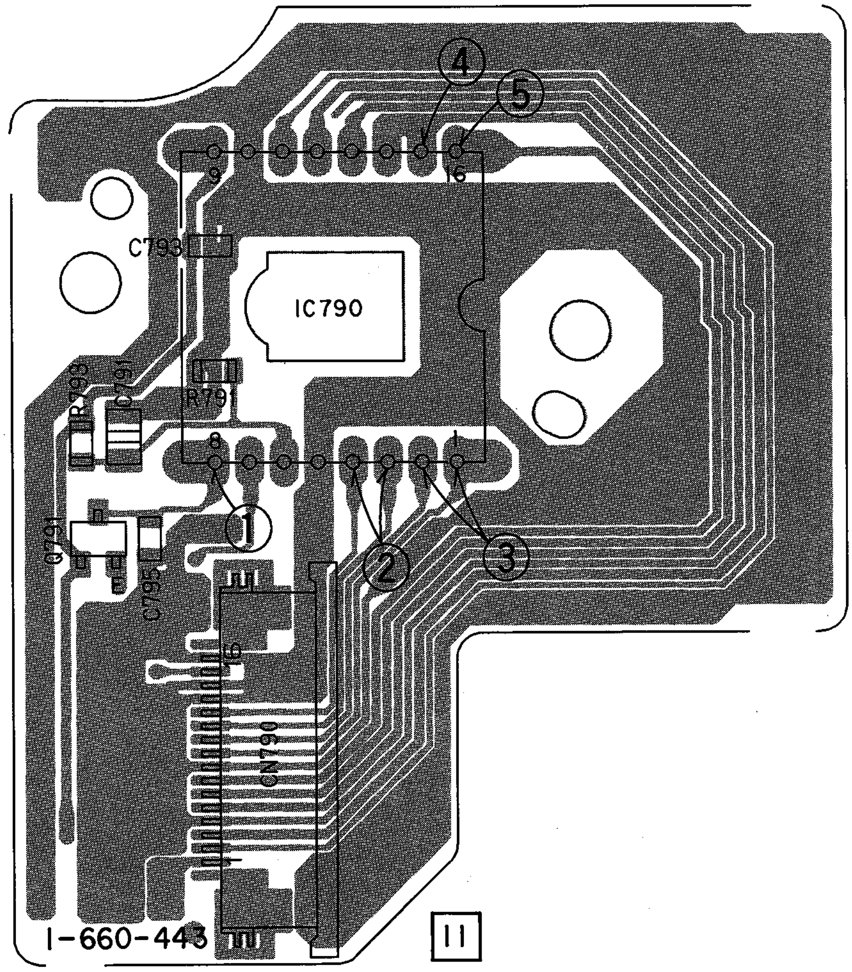


E A)



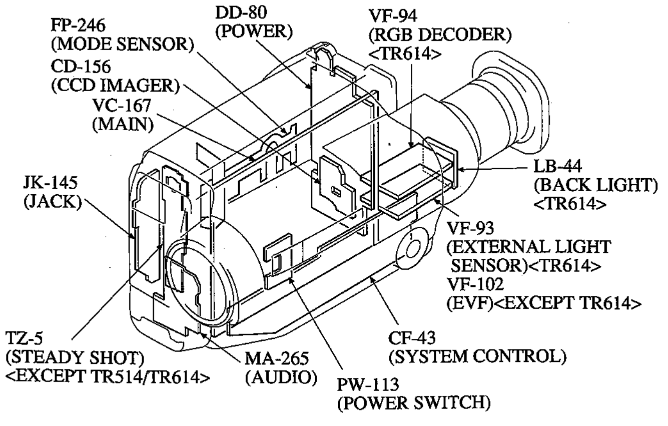
16
9
IC790
1
8
R792
R796
Q790
C792
R794
R795
C790
L790
1-660-443
11

CD-156 BOARD (SIDE B)



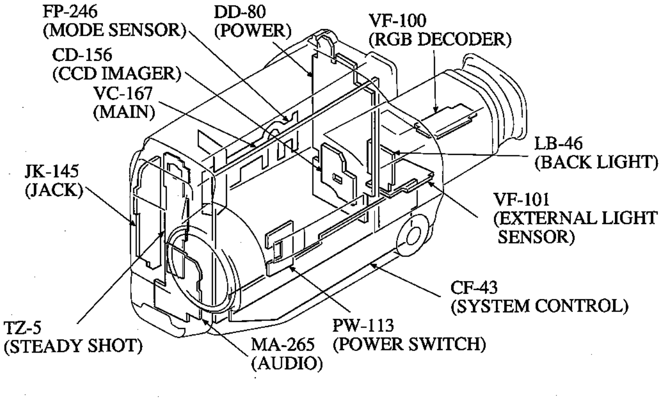
④
⑤
9
16
C793
IC790
R793
C791
R791
8
1
①
②
③
Q791
C795
CN790
1-660-443
11

TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL



FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.



FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
PW-113
(POWER SWITCH)
MA-265
(AUDIO)

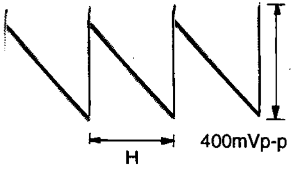
VC-167 (CAMERA 2) SCHEMATIC DIAGRAM

— Ref. No. VC-167 Board; 1,000 Series —

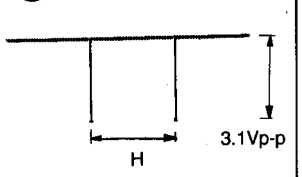
- See page 4-7 for VC-167 BOARD printed wiring board.

VC-167 BOARD

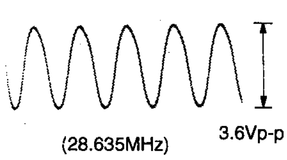
① IC701 ① REC



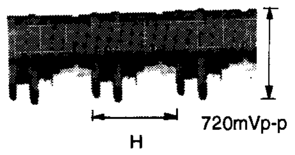
⑦ IC703 ㉔ REC



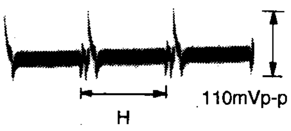
② IC702 ⑤ REC/PB



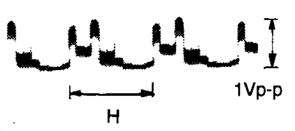
⑧ IC703 ㉕ ,㉖ REC



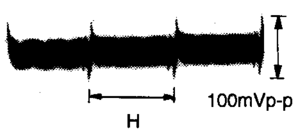
③ IC702 ㉝ REC



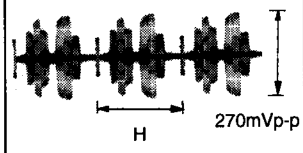
⑨ IC704 ㊴ REC



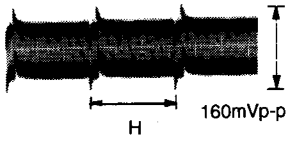
④ IC702 ㉞ REC



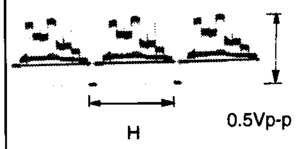
⑩ IC706 ⑳ REC



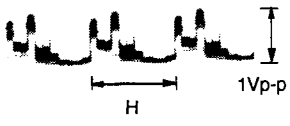
⑤ IC702 ㉟ REC

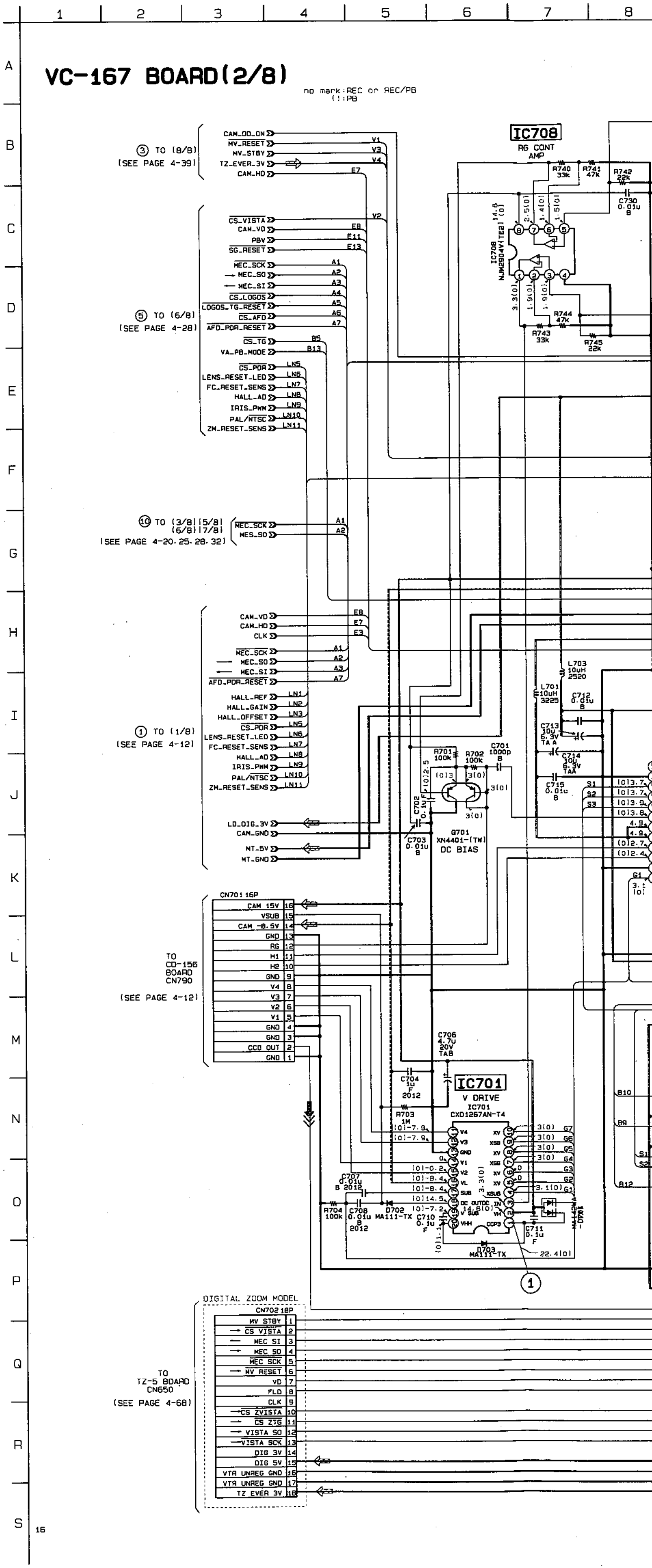


⑪ IC706 ㉓ REC



⑥ IC703 ⑧ REC




VC-167 BOARD(2/8)
no mark:REC or REC/PB
( ):PB
③ TO (8/8)
(SEE PAGE 4-39)
CAM_DD_ON
MV_RESET
MV_STBY
TZ_EVER_3V
CAM_HD
⑤ TO (6/8)
(SEE PAGE 4-28)
CS_VISTA
CAM_VD
PBV
SG_RESET
MEC_SCK
MEC_SO
MEC_SI
CS_LOGOS
LOGOS_TG_RESET
CS_AFD
AFD_POR_RESET
CS_TG
VA_PB_MODE
CS_POR
LENS_RESET_LED
FC_RESET_SENS
HALL_AD
IRIS_PWM
PAL/NTSC
ZM_RESET_SENS
⑩ TO (3/8)(5/8)
(6/8)(7/8)
(SEE PAGE 4-20, 25, 28, 32)
MES_SO
① TO (1/8)
(SEE PAGE 4-12)
CLK
HALL_REF
HALL_GAIN
HALL_OFFSET
LD_DIG_3V
CAM_GND
MT_5V
MT_GND
CN701 16P
CAM 15V
VSUB
CAM -8.5V
GND
RG
H1
H2
V4
V3
V2
V1
CCD OUT
TO
CD-156
BOARD
CN790
(SEE PAGE 4-12)
DIGITAL ZOOM MODEL
CN702 18P
MV STBY
CS VISTA
MEC SI
MEC SO
MEC SCK
MV RESET
VD
FLD
CLK
CS ZVISTA
CS ZTG
VISTA SO
VISTA SCK
DIG 3V
DIG 5V
VTR UNREG GND
TZ EVER 3V
TO
TZ-5 BOARD
CN650
(SEE PAGE 4-68)
IC708
RG CONT
AMP
IC708
NJM2904V(TE2)
R740 33k
R741 47k
R742 22k
C730 0.01u B
R743 33k
R744 47k
R745 22k
L703 10uH 2520
L701 10uH 3225
C712 0.01u B
C713 10u 6.3V TA A
C714 10u 6.3V TAA
C715 0.01u B
R701 100k
R702 100k
C701 1000p B
C702 0.1u F
C703 0.01u B
Q701
XN4401-(TW)
DC BIAS
S1
S2
S3
G1
C706 4.7u 20V TAB
C704 1u F 2012
R703 1M
IC701
V DRIVE
IC701
CXD1267AN-T4
C707 0.01u B 2012
R704 100k
C708 0.01u B 2012
D702 MA111-TX
C710 0.1u F
C711 0.1u F
D703 MA111-TX
D701 MA142WA
G7
G6
G5
G4
G3
G2
①
1
2
3
4
5
6
7
8
A
B
C
D
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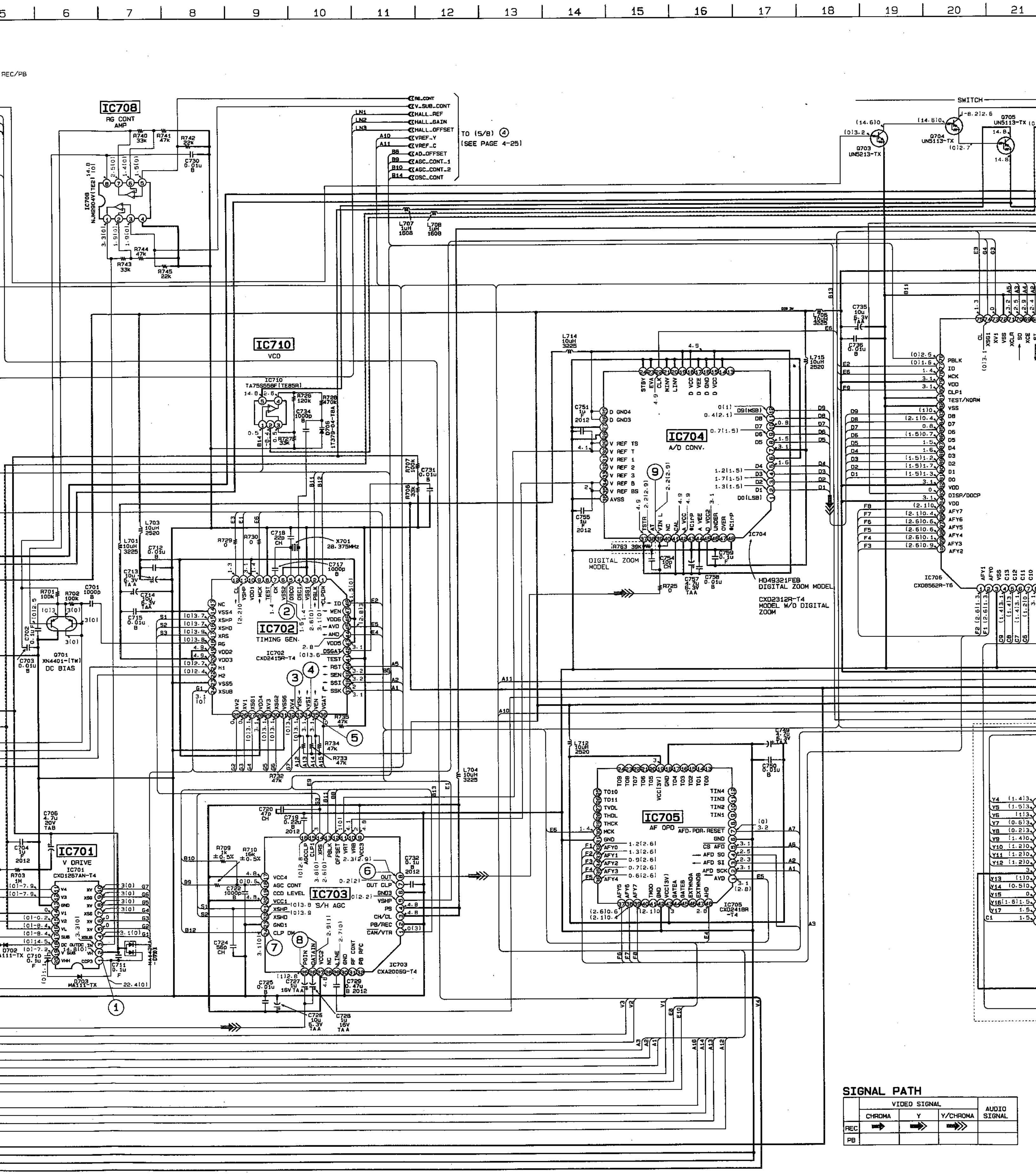
P
Q
R
S
16


5
6
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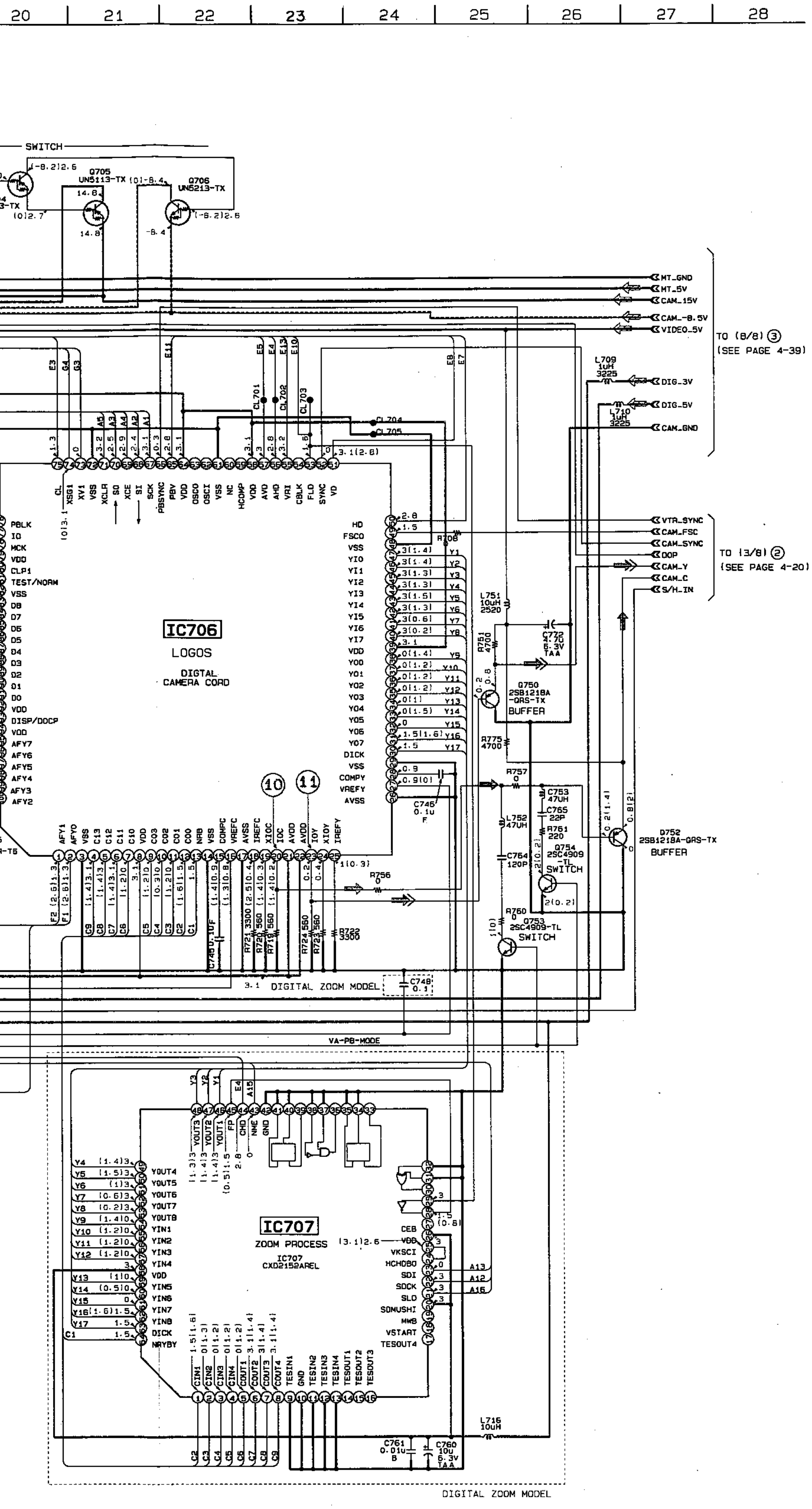
10
11
12
13
14
15
16
17
18
19
20
21
REC/PB
IC708
RG CONT AMP
IC708 NJM2904V(TE2)
R740 33k
R741 47k
R742 22k
C730 0.01u B
R743 33k
R744 47k
R745 22k
RG_CONT
V_SUB_CONT
HALL_REF
HALL_GAIN
HALL_OFFSET
VREF_Y
VREF_C
AD_OFFSET
AGC_CONT_1
AGC_CONT_2
OSC_CONT
LN1
LN2
LN3
A10
A11
B8
B9
B10
B14
TO (5/8) ④
(SEE PAGE 4-25)
L707 1uH 1608
L708 1uH 1608
SWITCH
Q703 UN5213-TX
Q704 UN5113-TX
Q705 UN5113-TX
IC710
VCO
IC710 TA75S558F(TE85R)
R726 120k
R728 470k
C734 1000p B
R727 33k
D706 1T379-01-T8A
L714 10uH 3225
L705 10uH 3225
L715 10uH 2520
C735 10u 6.3V TAA
C736 0.01u B
C751 1u 2012
C755 1u 2012
IC704
A/D CONV.
D GND4
D GND3
V REF TS
V REF T
V REF 1
V REF 2
V REF 3
V REF B
V REF BS
AVSS
STBY
EVA
CLK
MINV
LINV
D VCC
D VEE
D GND
D VCC
D9(MSB)
D8
D7
D6
D5
D4
D3
D2
D1
D0(LSB)
TSTR
AT
VIN L
NC
CAL
A VCC
#CIrP
A VEE
D VCC2
UNDER
OVER
R763 39K
C754 10p CH
C759 0.1u F
C757 4.7u 6.3V TAA
C758 0.01u B
R725 0
DIGITAL ZOOM MODEL
HD49321FEB DIGITAL ZOOM MODEL
CXD2312R-T4 MODEL W/O DIGITAL ZOOM
IC706 CXD8562R-T6
PBLK
ID
MCK
VDD
CLP1
TEST/NORM
VSS
DISP/DOCP
AFY7
AFY6
AFY5
AFY4
AFY3
AFY2
R707 100k
R706 33k
C731 0.01u B
L703 10uH 2520
L701 10uH 3225
C712 0.01u B
R729 0
R730 0
C718 22p CH
X701 28.375MHz
C717 1000p B
C713 10u 6.3V TAA
C714 10u 6.3V TAA
C715 0.01u B
R701 100k
R702 100k
C701 1000p B
C702 0.1u F
C703 0.01u B
Q701 XN4401-(TW) DC BIAS
IC702
TIMING GEN.
IC702 CXD2415R-T4
NC
VSS4
XSHP
XSHD
XRS
RG
VDD2
VDD3
H1
H2
VSS5
XSUB
ID
WEN
VDD6
AVD
AHD
VDD5
DSGAT
TEST
RST
SEN
SSI
SSK
XV2
XV1
XSG1
VDD4
XV3
XSG2
XV4
VSK
VSI
VEN
VGAT
R735 47k
R734 47k
R733 47k
R732 47k
L704 10uH 3225
L712 10uH 2520
C749 4.7u 6.3V TAA
C750 0.01u B
IC705
AF OPD
IC705 CXD2418R-T4
TO10
TO11
TVDL
THDL
THCK
MCK
GND
AFY0
AFY1
AFY2
AFY3
AFY4
TIN4
TIN3
TIN2
TIN1
AFD. PDR. RESET
CS AFD
AFD SO
AFD SI
AFD SCK
AVD
C706 4.7u 20V TAB
C704 1u 2012
IC701
V DRIVE
IC701 CXD1267AN-T4
R703 1M
D702 MA111-TX
C710 0.1u F
C711 0.1u F
D703 MA111-TX
D701 MA142WA-TX
C720 47p CH
C719 0.22u B 2012
R709 1k ±0.5%
R710 16k ±0.5%
C722 1000p B
C732 0.1u B 2012
IC703
S/H AGC
IC703 CXA2005Q-T4
VCC4
AGC CONT
CCD LEVEL
VCC1
XSHP
XSHD
GND1
CLP DM
PGIN
DATAIN
VCC2
NC
LINE
GND
RF CONT
PB RFC
OUT
OUT CLP
GND3
VSHP
PS
CH/CL
PB/REC
CAM/VTR
AGCCLP
CLP1
XRS
PBLK
OFFSET
VRT
VRB
VCC3
C724 560 CH
C725 0.01u B
C727 1u 16V TAA
C729 0.47u B 2012
C726 10u 6.3V TAA
C728 1u 16V TAA
①
②
③
④
⑤
⑥
⑦
⑧
⑨

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	
PB				


20
21
22
23
24
25
26
27
28
SWITCH
Q705
UN5113-TX
Q706
UN5213-TX
MT_GND
MT_5V
CAM_15V
CAM_-8.5V
VIDEO_5V
TO (8/8) ③
(SEE PAGE 4-39)
L709
1uH
3225
DIG_3V
DIG_5V
L710
1uH
3225
CAM_GND
CL701
CL702
CL703
CL704
CL705
VTR_SYNC
CAM_FSC
CAM_SYNC
DOP
CAM_Y
CAM_C
S/H_IN
TO (3/8) ②
(SEE PAGE 4-20)
IC706
LOGOS
DIGITAL
CAMERA CORD
R708
L751
10uH
2520
R751
4700
C772
4.7U
6.3V
TAA
Q750
2SB1218A
-QRS-TX
BUFFER
R775
4700
R757
0
C753
47UH
C765
22P
R761
220
L752
47UH
C764
120P
Q754
2SC4909
-TL
SWITCH
Q752
2SB1218A-QRS-TX
BUFFER
R760
0
Q753
2SC4909-TL
SWITCH
R756
0
C745
0.1u
F
⑩
⑪
R721 3300
R720 560
R719 560
R724 560
R723 560
R722
3300
C746 0.1UF
DIGITAL ZOOM MODEL
C748
0.1
VA-PB-MODE
IC707
ZOOM PROCESS
IC707
CXD2152AREL
L716
10uH
C761
0.01u
B
C760
10u
6.3V
TAA
DIGITAL ZOOM MODEL

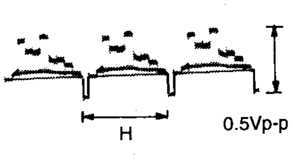
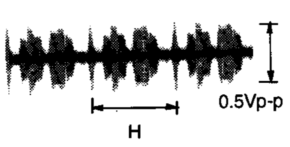
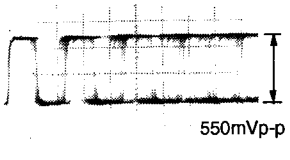
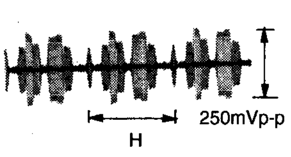
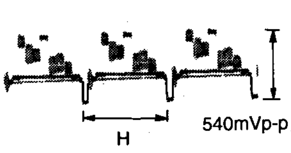
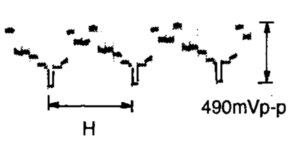
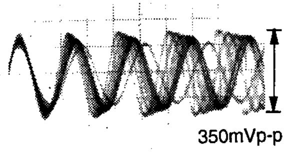
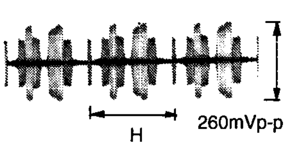
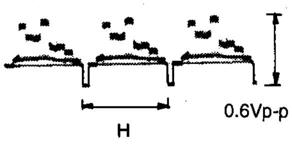
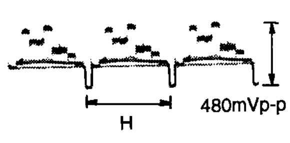
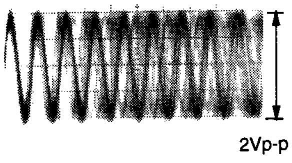
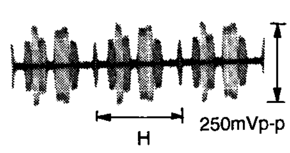
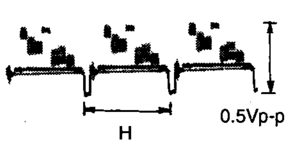
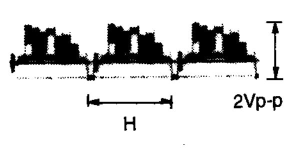
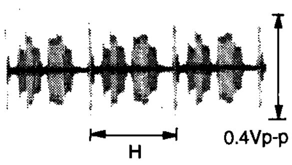
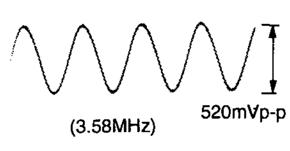
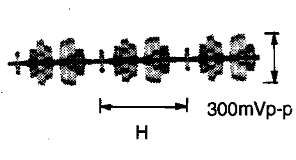
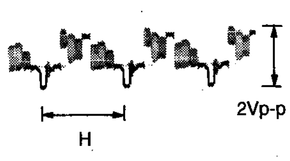
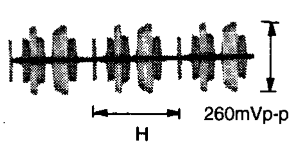
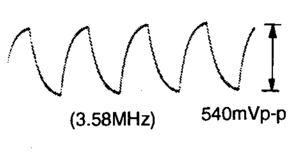
Y/CHROMA	AUDIO SIGNAL
➡⟫	

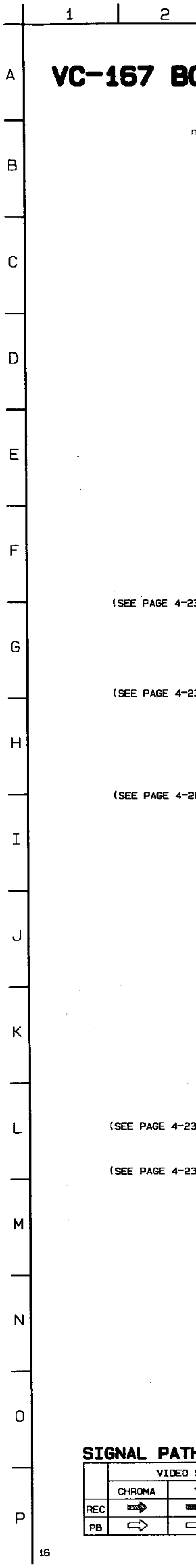
VC-167 (CAMERA 3) SCHEMATIC DIAGRAM

— Ref. No. VC-167 Board; 1,000 Series —

- See page 4-7 for VC-167 BOARD printed wiring board.

VC-167 BOARD

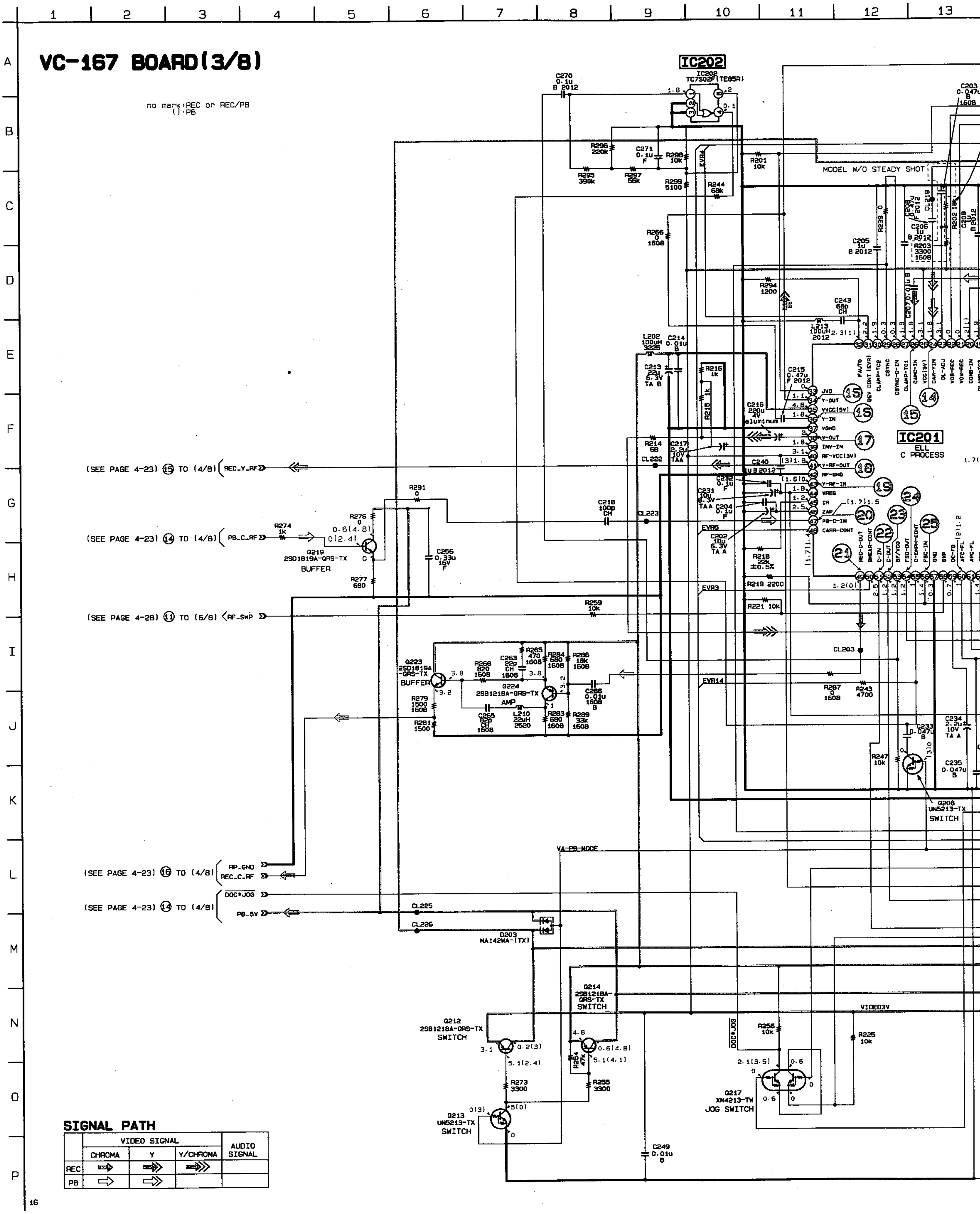
⑬ IC201 ⑮ REC  	⑮ IC201 ㉖ PB  	⑱ IC201 ㊶ REC  	㉒ IC201 (51) PB 
⑬ IC201 ⑮ PB  	⑯ IC201 ㉞ ,㊱ REC  	⑲ IC201 ㊸ PB  	㉓ IC201 (52) REC 
⑭ IC201 ㉔ REC  	⑯ IC201 ㉞ ,㊱ PB  	⑳ IC201 ㊼ PB  	㉓ IC201 (52) PB 
⑭ IC201 ㉔ PB  	⑰ IC201 ㊳ REC  	㉑ IC201 ㊾ REC  	㉔ IC201 (54) REC/PB 
⑮ IC201 ㉖ REC  	⑰ IC201 ㊳ PB  	㉒ IC201 (51) REC  	㉕ IC201 (56) REC/PB 


1
2
A
VC-167 B
B
C
D
E
F
(SEE PAGE 4-2
G
(SEE PAGE 4-2
H
(SEE PAGE 4-2
I
J
K
L
(SEE PAGE 4-23
(SEE PAGE 4-23
M
N
O
SIGNAL PAT
VIDEO
CHROMA
REC
PB
P
16

rd.

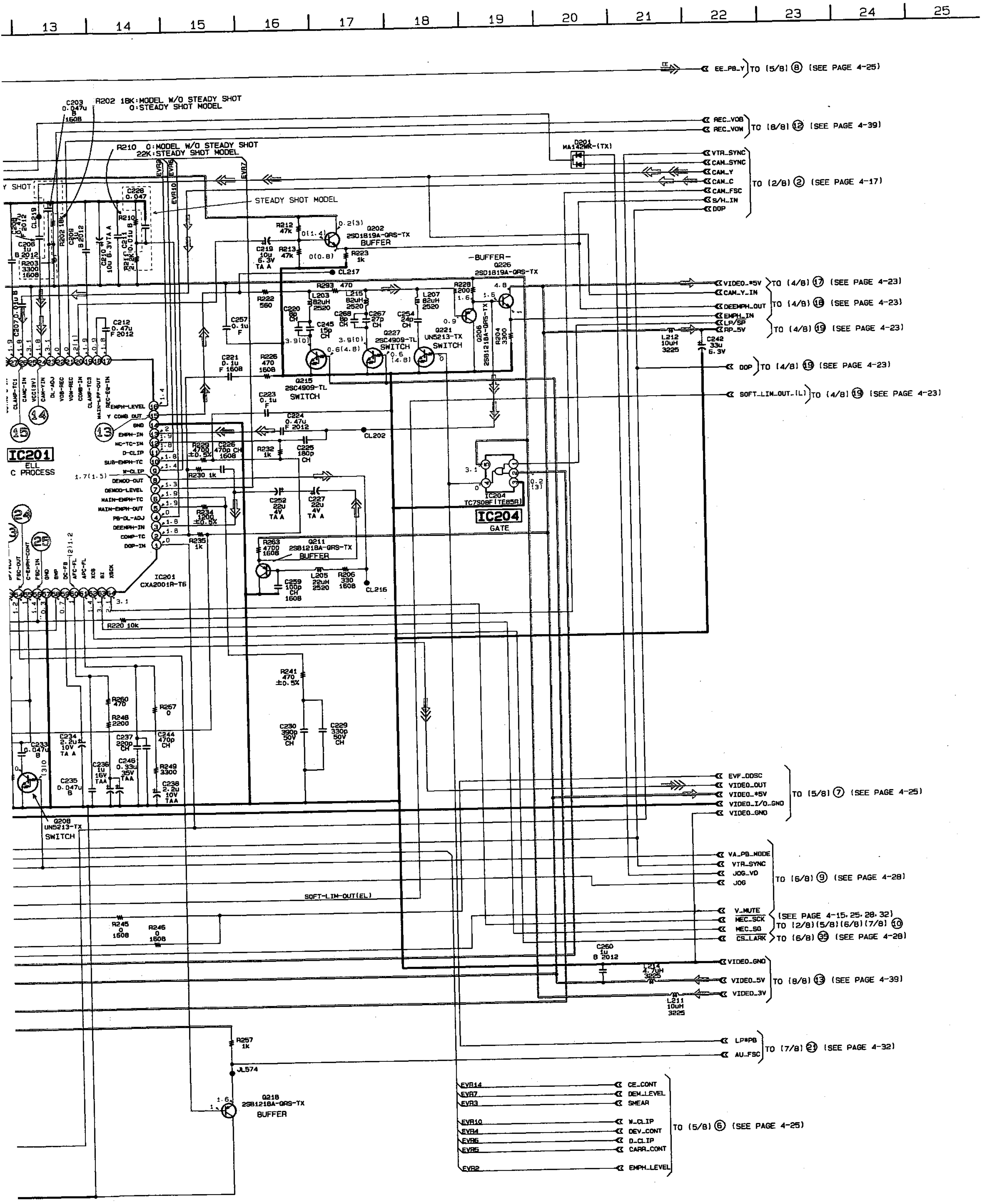
VC-167 BOARD(3/8)

no mark:REC or REC/PB
():PB


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J K L M N O P
IC202
TC7S02F(TE85R)
MODEL W/O STEADY SHOT
IC201
ELL
C PROCESS
(SEE PAGE 4-23) ⑮ TO (4/8) REC_Y_RF
(SEE PAGE 4-23) ⑭ TO (4/8) PB_C_RF
(SEE PAGE 4-28) ⑪ TO (6/8) RF_SWP
(SEE PAGE 4-23) ⑯ TO (4/8) RP_GND REC_C_RF
(SEE PAGE 4-23) ⑭ TO (4/8) DOC*JOG PB_5V
Q219
2SD1819A-QRS-TX
BUFFER
Q223
2SD1819A-QRS-TX
BUFFER
Q224
2SB1218A-QRS-TX
AMP
Q208
UN5213-TX
SWITCH
Q214
2SB1218A-QRS-TX
SWITCH
Q212
2SB1218A-QRS-TX
SWITCH
Q213
UN5213-TX
SWITCH
Q217
XN4213-TW
JOG SWITCH
D203
MA142WA-(TX)
VA-PB-MODE
VIDEO3V
16

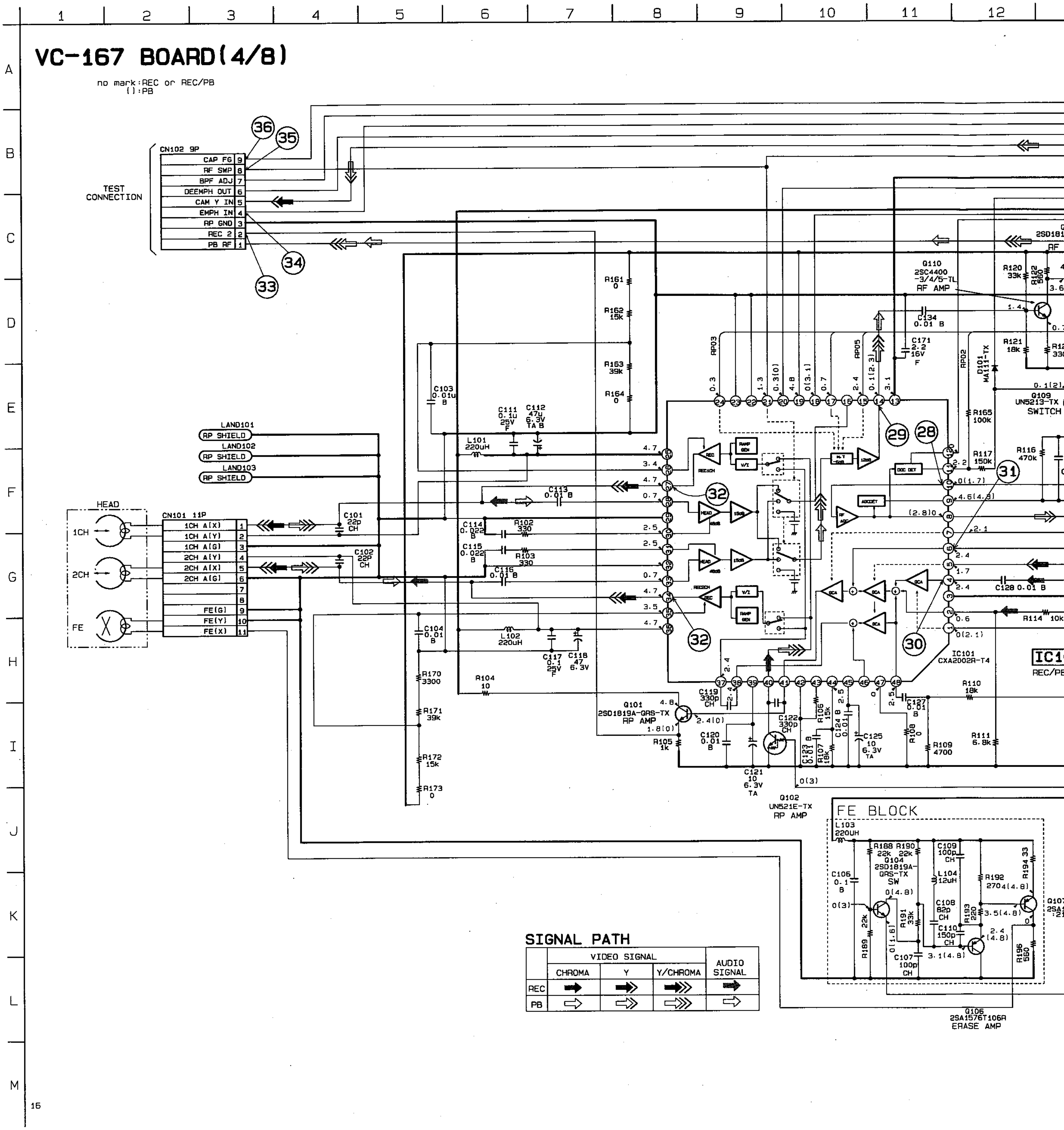
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	⇨	⇛	⇛	
PB	⇨	⇨		


13
14
15
16
17
18
19
20
21
22
23
24
25
EE_PB_Y TO (5/8) ⑧ (SEE PAGE 4-25)
REC_VOB
REC_VOW TO (8/8) ⑫ (SEE PAGE 4-39)
C203 0.047u B 1608
R202 18K:MODEL W/O STEADY SHOT 0:STEADY SHOT MODEL
R210 0:MODEL W/O STEADY SHOT 22K:STEADY SHOT MODEL
D201 MA142WK-(TX)
VTR_SYNC
CAM_SYNC
CAM_Y
CAM_C
CAM_FSC
S/H_IN
DOP
TO (2/8) ② (SEE PAGE 4-17)
STEADY SHOT MODEL
C228 0.047
Q202 2SD1819A-QRS-TX BUFFER
R212 47k
R213 47k
C219 10u 6.3V TA A
R223 1k
CL217
-BUFFER- Q226 2SD1819A-QRS-TX
R293 470
L203 82uH 2520
L215 82uH 2520
L207 82uH 2520
R228 1200
R222 560
C220 8p CH
C245 15p CH
C268 8p CH
C267 27p CH
C254 24p CH
C257 0.1u F
Q227 2SC4909-TL SWITCH
Q221 UN5213-TX SWITCH
Q206 2SB1218A-QRS-TX
R204 3300
VIDEO_5V TO (4/8) ⑰ (SEE PAGE 4-23)
CAM_Y_IN
DEEMPH_OUT TO (4/8) ⑱ (SEE PAGE 4-23)
EMPH_IN
LP/SP
RP_5V TO (4/8) ⑲ (SEE PAGE 4-23)
L212 10uH 3225
C242 33u 6.3V
DOP TO (4/8) ⑲ (SEE PAGE 4-23)
SOFT_LIM_OUT_(L) TO (4/8) ⑲ (SEE PAGE 4-23)
C221 0.1u F 1608
R226 470 1608
Q215 2SC4909-TL SWITCH
C223 0.1u F
C224 0.47u F 2012
CL202
C212 0.47u F 2012
C206 1u B 2012
R203 3300 1608
C209 1u B 2012
C210 10u 6.3V TA A
C211 0.01u B
C207 0.01u B
IC201 ELL C PROCESS
EMPH-LEVEL
Y COMB OUT
GND
EMPH-IN
NC-TC-IN
D-CLIP
SUB-EMPH-TC
W-CLIP
DEMOD-OUT
DEMOD-LEVEL
MAIN-EMPH-TC
MAIN-EMPH-OUT
PB-DL-ADJ
DEEMPH-IN
COMP-TC
DOP-IN
CLAMP-TC1
CAMC-IN
VCC(3V)
CAM-YIN
DL-ADJ
VOB-REC
VOW-REC
COMB-IN
CLAMP-TC3
MAIN-LPF-OUT
REC-EQ-IN
R229 4700 ±0.5%
C226 470p CH 1608
R232 1k
C225 180p CH
R230 1k
C252 22u 4V TA A
C227 22u 4V TA A
R234 1200 ±0.5%
R235 1k
R263 4700 1608
Q211 2SB1218A-QRS-TX BUFFER
L205 22uH 2520
R206 330 1608
C259 100p CH 1608
CL216
IC204 TC7S08F(TE85R)
IC204 GATE
IC201 CXA2001R-T6
FSC-OUT
C-EMPH-CONT
FSC-IN
GND
BMP
DC-FB
AFC-FL
APC-FL
XCS
SI
XSCK
R220 10k
R241 470 ±0.5%
C230 390p 50V CH
C229 330p 50V CH
R260 470
R267 0
R248 2200
C233 0.047u B
C234 2.2u 10V TA A
C237 220p CH
C244 470p CH
C246 0.33u 35V TAA
C236 1u 16V TAA
R249 3300
C235 0.047u B
C238 2.2u 10V TAA
Q208 UN5213-TX SWITCH
EVF_DDSC
VIDEO_OUT
VIDEO_5V
VIDEO_I/O_GND
VIDEO_GND
TO (5/8) ⑦ (SEE PAGE 4-25)
VA_PB_MODE
VTR_SYNC
JOG_VD
JOG
TO (6/8) ⑨ (SEE PAGE 4-28)
SOFT-LIM-OUT(EL)
V_MUTE
MEC_SCK
MEC_SO
CS_LARK
(SEE PAGE 4-15, 25, 28, 32)
TO (2/8)(5/8)(6/8)(7/8) ⑩
TO (6/8) ㉟ (SEE PAGE 4-28)
R245 0 1608
R246 0 1608
C260 1u B 2012
L214 4.7uH 3225
L211 10uH 3225
VIDEO_GND
VIDEO_5V
VIDEO_3V
TO (8/8) ⑬ (SEE PAGE 4-39)
R257 1k
JL574
LP*PB
AU_FSC
TO (7/8) ㉑ (SEE PAGE 4-32)
Q218 2SB1218A-QRS-TX BUFFER
EVR14
EVR7
EVR3
EVR10
EVR4
EVR6
EVR5
EVR2
CE_CONT
DEM_LEVEL
SMEAR
W_CLIP
DEV_CONT
D_CLIP
CARR_CONT
EMPH_LEVEL
TO (5/8) ⑥ (SEE PAGE 4-25)

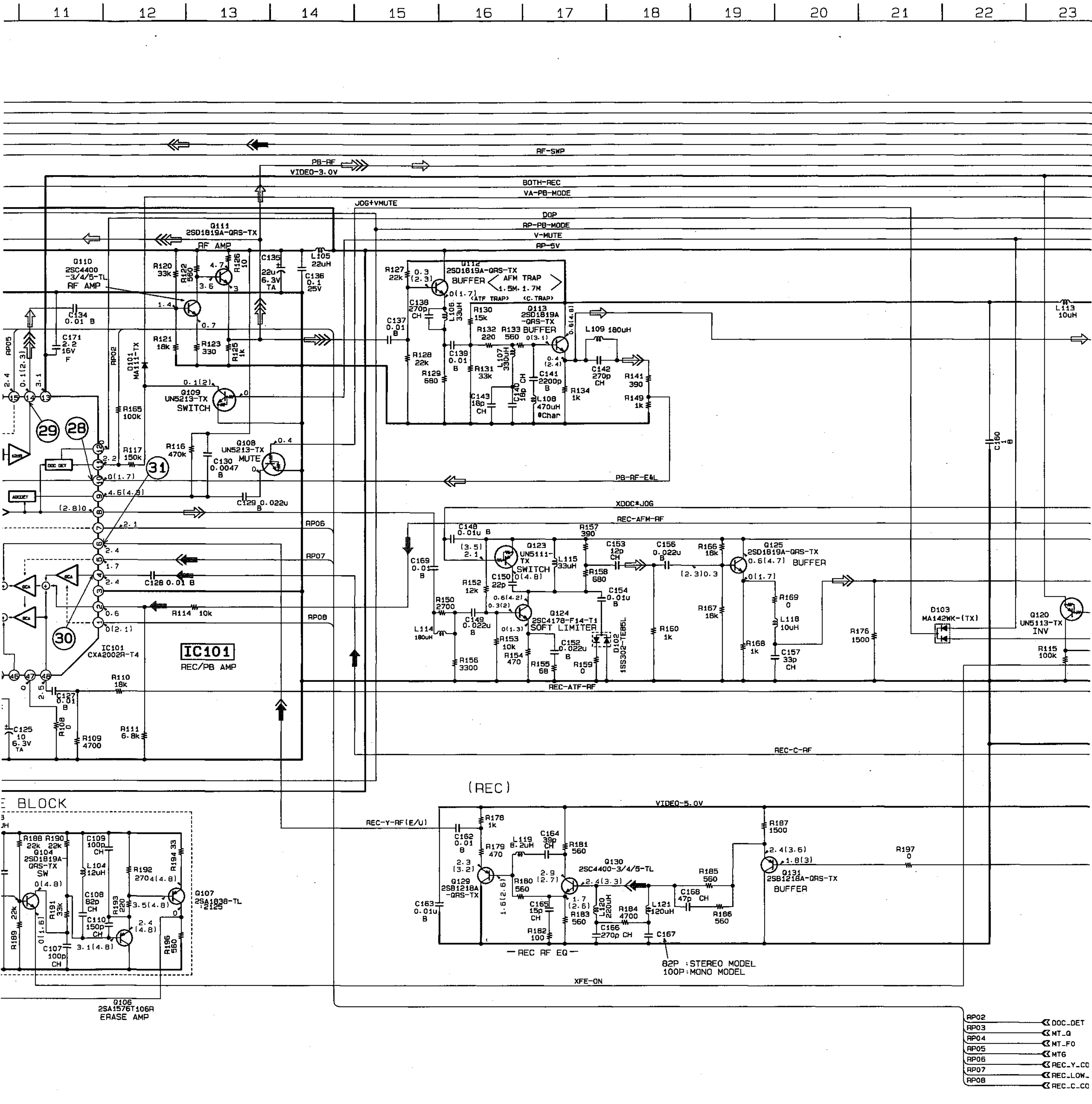
VC-167 (VIDEO 1) SCHEMATIC DIAGRAM • See page 4-7 for VC-167 BOARD printed wiring board.

— Ref. No. VC-167 Board; 1,000 Series —


VC-167 BOARD(4/8)
no mark:REC or REC/PB
( ):PB
CN102 9P
TEST CONNECTION
CAP FG 9
RF SWP 8
BPF ADJ 7
DEEMPH OUT 6
CAM Y IN 5
EMPH IN 4
RP GND 3
REC 2 2
PB RF 1
36
35
34
33
R161 0
R162 15k
R163 39k
R164 0
LAND101
RP SHIELD
LAND102
RP SHIELD
LAND103
RP SHIELD
HEAD
1CH
2CH
FE
CN101 11P
1CH A(X) 1
1CH A(Y) 2
1CH A(G) 3
2CH A(Y) 4
2CH A(X) 5
2CH A(G) 6
7
8
FE(G) 9
FE(Y) 10
FE(X) 11
C101 22p CH
C102 22P CH
C103 0.01u B
C111 0.1u 25V F
C112 47u 6.3V TA B
L101 220uH
C113 0.01 B
C114 0.022 B
R102 330
C115 0.022 B
R103 330
C116 0.01 B
C104 0.01 B
L102 220uH
C117 0.1 25V F
C118 47 6.3V
R170 3300
R171 39k
R172 15k
R173 0
R104 10
Q101 2SD1819A-QRS-TX RP AMP
R105 1k
C119 330p CH
C120 0.01 B
C121 10 6.3V TA
Q102 UN521E-TX RP AMP
C122 330p CH
C123 0.01 B
R107 18k
R106 15k
C124 0.01 B
C125 10 6.3V TA
R108 0
R109 4700
C127 0.01 B
R110 18k
R111 6.8k
IC101 CXA2002R-T4
R114 10k
C128 0.01 B
R116 470k
R117 150k
R165 100k
C134 0.01 B
C171 2.2 16V F
D101 MA111-TX
Q110 2SC4400-3/4/5-TL RF AMP
R120 33k
R122 560
R121 18k
Q109 UN5213-TX SWITCH
RP03
RP05
RP02
REC
HEAD
REC2CH
REC1CH
RAMP GEN
W/I
AGC DET
RF AGC
GCA
DOC DET
28
29
30
31
32
FE BLOCK
L103 220uH
R188 22k
R190 22k
Q104 2SD1819A-QRS-TX SW
C109 100p CH
L104 12uH
R192 270
R194 33
C105 0.1 B
R189 22k
R191 33k
C108 82p CH
R193 220
C110 150p CH
C107 100p CH
R196 560
Q106 2SA1576T106R ERASE AMP
2SD181
RF
16

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⇛	➡
PB	⇨	⇨	⇨	⇨



11
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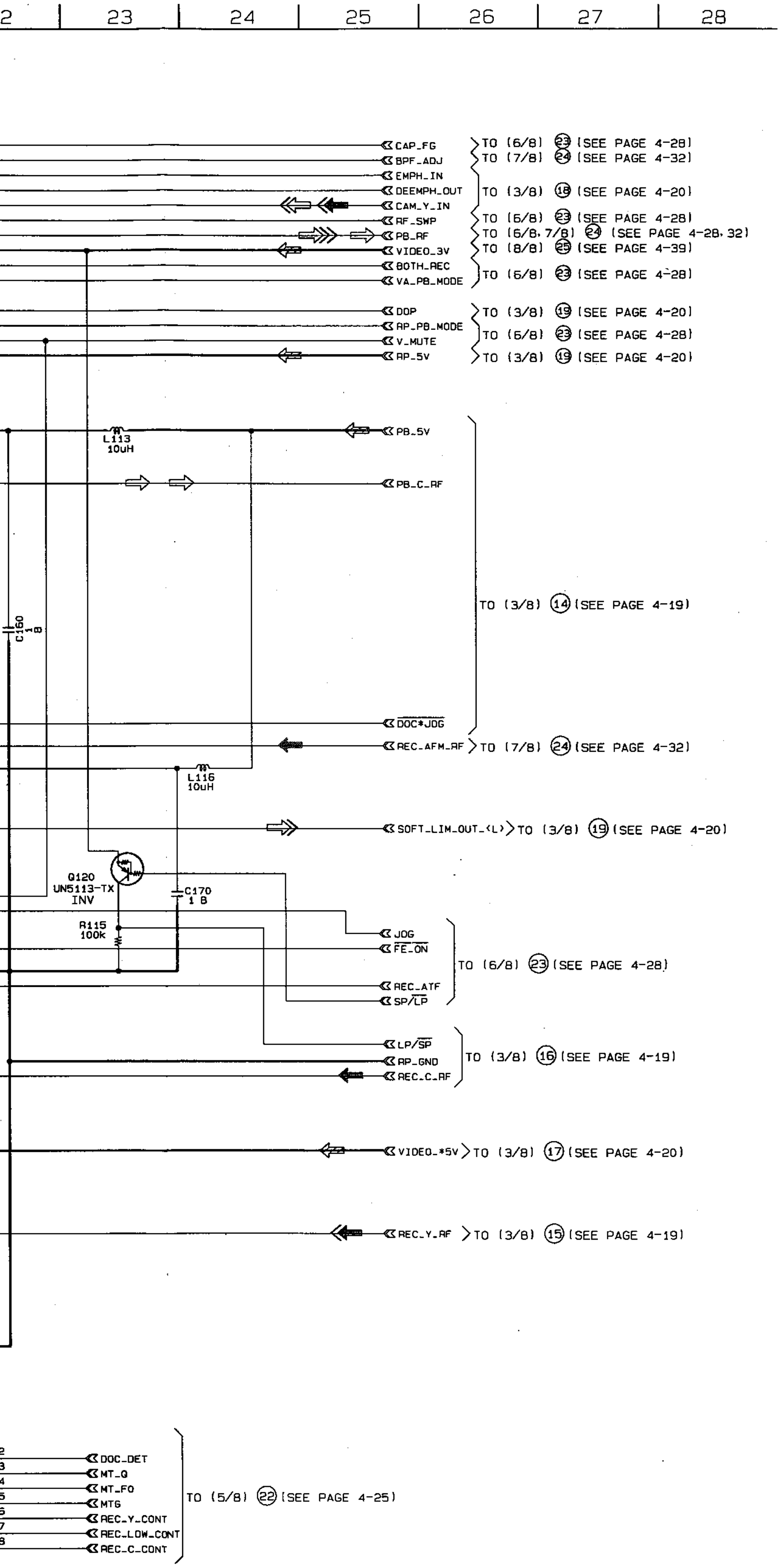
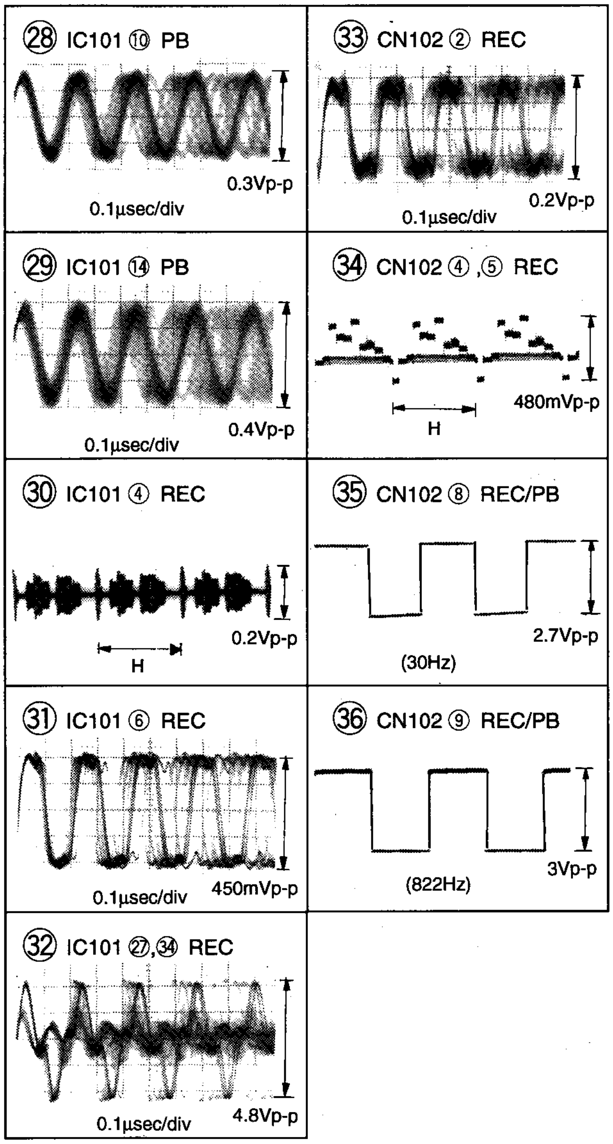
20
21
22
23
RF-SWP
PB-RF
VIDEO-3.0V
BOTH-REC
VA-PB-MODE
JOG+VMUTE
DOP
RP-PB-MODE
V-MUTE
RP-5V
Q111
2SD1819A-QRS-TX
RF AMP
Q110
2SC4400
-3/4/5-TL
RF AMP
R120 33k
R122 560
R126 10
C135 22u 6.3V TA
L105 22uH
C136 0.1 25V
C134 0.01 B
C171 2.2 16V F
R121 18k
R123 330
R125 1k
D101 MA111-TX
RP02
RP05
Q109
UN5213-TX
SWITCH
R165 100k
Q108
UN5213-TX
MUTE
R116 470k
R117 150k
C130 0.0047 B
C129 0.022u B
C128 0.01 B
R114 10k
RP06
RP07
RP08
IC101
CXA2002R-T4
IC101
REC/PB AMP
R110 18k
C127 0.01 B
R108 0
C125 10 6.3V TA
R109 4700
R111 6.8k
Q112
2SD1819A-QRS-TX
BUFFER
AFM TRAP
1.5M-1.7M
<ATF TRAP>
<C.TRAP>
R127 22k
C138 270p CH
L106 33uH
C137 0.01 B
R128 22k
R129 680
R130 15k
R132 220
R133 560
Q113
2SD1819A
-QRS-TX
BUFFER
C139 0.01 B
R131 33k
L107 330uH
C143 18p CH
C140 18p CH
C141 2200p B
L108 470uH
●Char
R134 1k
L109 180uH
C142 270p CH
R141 390
R149 1k
PB-RF-E&L
XDOC*JOG
REC-AFM-RF
C148 0.01u B
R157 390
Q123
UN5111-TX
SWITCH
L115 33uH
C153 12p CH
C156 0.022u B
R166 18k
Q125
2SD1819A-QRS-TX
BUFFER
R158 680
C154 0.01u B
C169 0.01 B
C150 22p
R152 12k
R150 2700
Q124
2SC4178-F14-T1
SOFT LIMITER
C149 0.022u B
L114 180uH
R153 10k
R154 470
R155 68
C152 0.022u B
R159 0
D102 1SS302-TE85L
R156 3300
R160 1k
R167 18k
R169 0
L118 10uH
R168 1k
C157 33p CH
R176 1500
D103
MA142WK-(TX)
Q120
UN5113-TX
INV
R115 100k
C160 1 B
L113 10uH
REC-ATF-RF
REC-C-RF
(REC)
VIDEO-5.0V
REC-Y-RF(E/U)
R178 1k
C162 0.01 B
R179 470
L119 8.2uH
C164 39p CH
R181 560
Q129
2SB1218A
-QRS-TX
C163 0.01u B
R180 560
Q130
2SC4400-3/4/5-TL
C165 15p CH
R183 560
R182 100
L120 220uH
R184 4700
C166 270p CH
L121 120uH
C167
C168 47p CH
R185 560
R186 560
R187 1500
Q131
2SB1218A-QRS-TX
BUFFER
R197 0
—REC RF EQ—
82P :STEREO MODEL
100P:MONO MODEL
XFE-ON
BLOCK
R188 22k
R190 22k
Q104
2SD1819A-QRS-TX
SW
C109 100p CH
L104 12uH
C108 82p CH
C110 150p CH
R192 270
R193 220
R194 33
Q107
2SA1838-TL
:2125
R191 33k
R189 22k
C107 100p CH
R196 560
Q106
2SA1576T106R
ERASE AMP
RP02
RP03
RP04
RP05
RP06
RP07
RP08
DOC_DET
MT_Q
MT_FO
MTG
REC_Y_CO
REC_LOW_
REC_C_CO
(29)
(28)
(31)
(30)


2
23
24
25
26
27
28
CAP_FG
BPF_ADJ
EMPH_IN
DEEMPH_OUT
CAM_Y_IN
RF_SWP
PB_RF
VIDEO_3V
BOTH_REC
VA_PB_MODE
TO (6/8) ㉓ (SEE PAGE 4-28)
TO (7/8) ㉔ (SEE PAGE 4-32)
TO (3/8) ⑱ (SEE PAGE 4-20)
TO (6/8) ㉓ (SEE PAGE 4-28)
TO (6/8, 7/8) ㉔ (SEE PAGE 4-28, 32)
TO (8/8) ㉕ (SEE PAGE 4-39)
TO (6/8) ㉓ (SEE PAGE 4-28)
DOP
RP_PB_MODE
V_MUTE
RP_5V
TO (3/8) ⑲ (SEE PAGE 4-20)
TO (6/8) ㉓ (SEE PAGE 4-28)
TO (3/8) ⑲ (SEE PAGE 4-20)
L113
10uH
PB_5V
PB_C_RF
C160
1
B
TO (3/8) ⑭ (SEE PAGE 4-19)
DOC*JOG
REC_AFM_RF
TO (7/8) ㉔ (SEE PAGE 4-32)
L116
10uH
SOFT_LIM_OUT_(L)
TO (3/8) ⑲ (SEE PAGE 4-20)
Q120
UN5113-TX
INV
C170
1 B
R115
100k
JOG
FE_ON
REC_ATF
SP/LP
TO (6/8) ㉓ (SEE PAGE 4-28)
LP/SP
RP_GND
REC_C_RF
TO (3/8) ⑯ (SEE PAGE 4-19)
VIDEO_*5V
TO (3/8) ⑰ (SEE PAGE 4-20)
REC_Y_RF
TO (3/8) ⑮ (SEE PAGE 4-19)
DOC_DET
MT_G
MT_FO
MTG
REC_Y_CONT
REC_LOW_CONT
REC_C_CONT
TO (5/8) ㉒ (SEE PAGE 4-25)

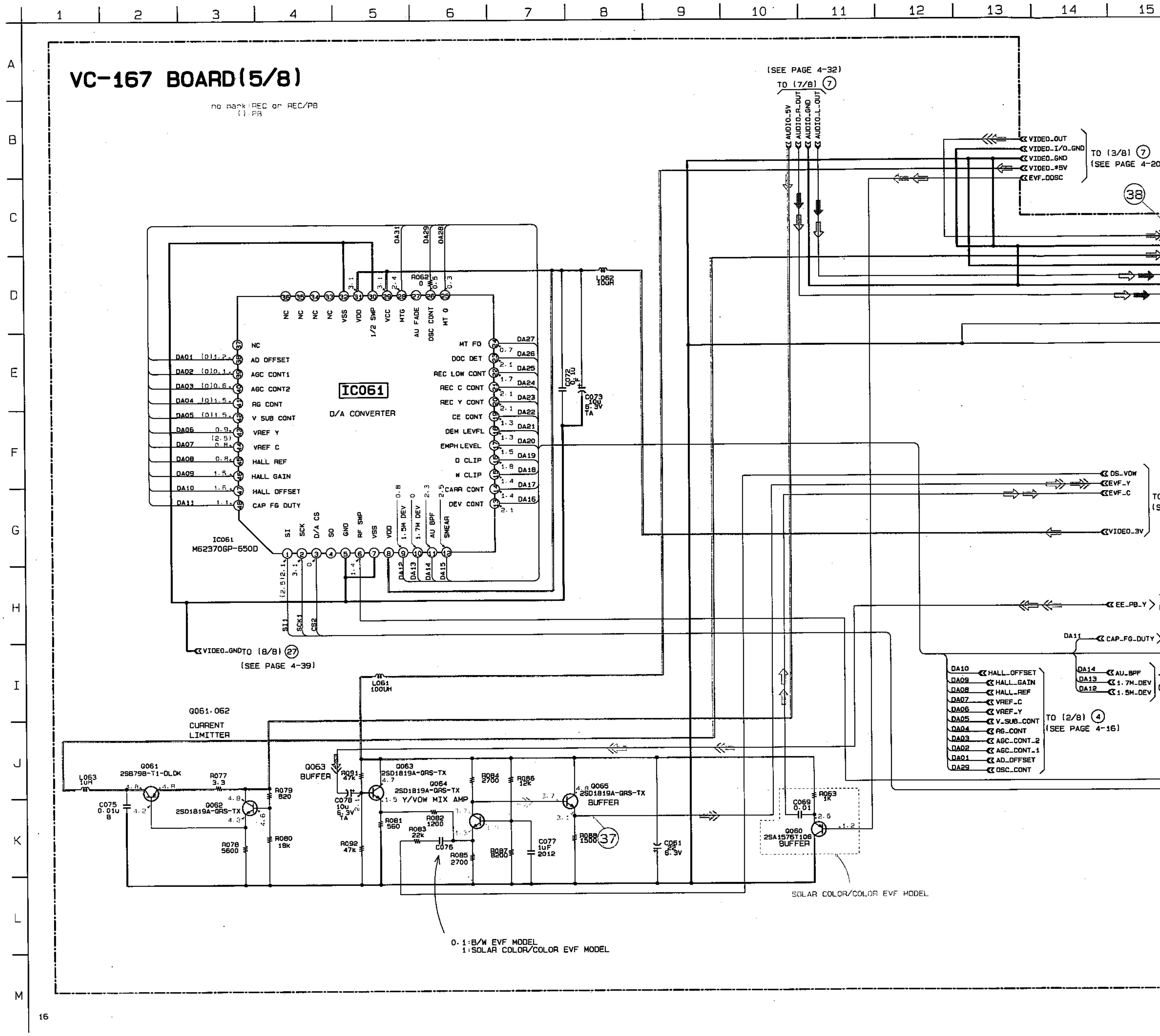
VC-167 BOARD


㉘ IC101 ⑩ PB
0.3Vp-p
0.1μsec/div
㉝ CN102 ② REC
0.2Vp-p
0.1μsec/div
㉙ IC101 ⑭ PB
0.4Vp-p
0.1μsec/div
㉞ CN102 ④ ,⑤ REC
480mVp-p
H
㉚ IC101 ④ REC
0.2Vp-p
H
㉟ CN102 ⑧ REC/PB
2.7Vp-p
(30Hz)
㉛ IC101 ⑥ REC
450mVp-p
0.1μsec/div
㊱ CN102 ⑨ REC/PB
3Vp-p
(822Hz)
㉜ IC101 ㉗,㉞ REC
4.8Vp-p
0.1μsec/div

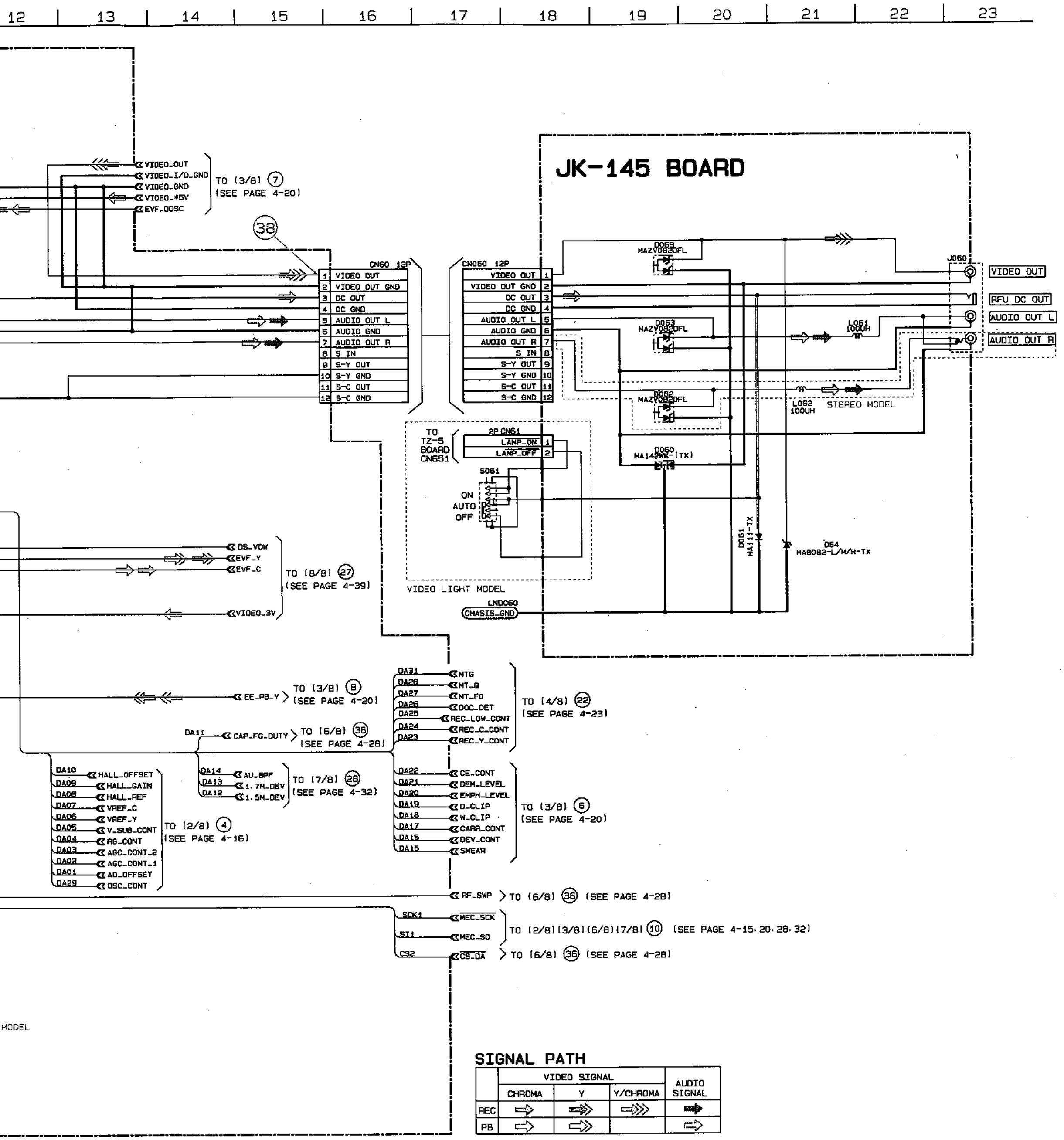
VC-167 (VIDEO 2) , JK-145 (JACK) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS

• See page 4-7 for VC-167 BOARD printed wi

— Ref. No. VC-167 Board; 1,000 Series, JK-145 Board; 2,000 Series —


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J K L M
VC-167 BOARD(5/8)
no mark:REC or REC/PB
( ):PB
IC061
D/A CONVERTER
IC061
M62370GP-650D
NC
AD OFFSET
AGC CONT1
AGC CONT2
RG CONT
V SUB CONT
VREF Y
VREF C
HALL REF
HALL GAIN
HALL OFFSET
CAP FG DUTY
NC NC NC NC VSS VDD 1/2 SWP VCC MTG AU FADE OSC CONT MT O
MT FO
DOC DET
REC LOW CONT
REC C CONT
REC Y CONT
CE CONT
DEM LEVFL
EMPH LEVEL
O CLIP
W CLIP
CARR CONT
DEV CONT
SI SCK D/A CS SO GND RF SWP VSS VDD 1.5M DEV 1.7M DEV AU BPF SMEAR
DA01 DA02 DA03 DA04 DA05 DA06 DA07 DA08 DA09 DA10 DA11
DA12 DA13 DA14 DA15 DA16 DA17 DA18 DA19 DA20 DA21 DA22 DA23 DA24 DA25 DA26 DA27 DA28 DA29 DA31
SI1 SCK1 CS2
R062 0
L062 10UH
C072 0.1U F
C073 10U 6.3V TA
VIDEO_GND TO (8/8) ㉗
(SEE PAGE 4-39)
L061 100UH
Q061.062
CURRENT LIMITTER
L063 1UH
Q061 2SB798-T1-DLDK
R077 3.3
C075 0.01U B
Q062 2SD1819A-QRS-TX
R078 5600
R079 820
R080 18K
Q063 BUFFER
R091 47k
Q063 2SD1819A-QRS-TX
Q064 2SD1819A-QRS-TX
Y/VOW MIX AMP
C078 10u 6.3V TA
R081 560
R082 1200
R083 22k
C076
R085 2700
R092 47k
R084 2700
R086 12k
R087 8200
C077 1uF 2012
Q065 2SD1819A-QRS-TX
BUFFER
R088 1500
㊲
C061 22 6.3V
C069 0.01
R063 1K
Q060 2SA1576T106 BUFFER
SOLAR COLOR/COLOR EVF MODEL
0.1:B/W EVF MODEL
1:SOLAR COLOR/COLOR EVF MODEL
(SEE PAGE 4-32)
TO (7/8) ⑦
AUDIO_5V
AUDIO_R_OUT
AUDIO_GND
AUDIO_L_OUT
VIDEO_OUT
VIDEO_I/O_GND
VIDEO_GND
VIDEO_*5V
EVF_OOSC
TO (3/8) ⑦
(SEE PAGE 4-20
㊳
DS_VOW
EVF_Y
EVF_C
VIDEO_3V
EE_PB_Y
DA11 CAP_FG_DUTY
DA10 HALL_OFFSET
DA09 HALL_GAIN
DA08 HALL_REF
DA07 VREF_C
DA06 VREF_Y
DA05 V_SUB_CONT
DA04 RG_CONT
DA03 AGC_CONT_2
DA02 AGC_CONT_1
DA01 AD_OFFSET
DA29 OSC_CONT
TO (2/8) ④
(SEE PAGE 4-16)
DA14 AU_BPF
DA13 1.7M_DEV
DA12 1.5M_DEV
16

7 for VC-167 BOARD printed wiring board.

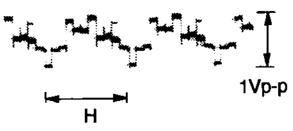

12
13
14
15
16
17
18
19
20
21
22
23
JK-145 BOARD
VIDEO_OUT
VIDEO_I/O_GND
VIDEO_GND
VIDEO_+5V
EVF_OOSC
TO (3/8) ⑦ (SEE PAGE 4-20)
㊳
CN60 12P
1 VIDEO OUT
2 VIDEO OUT GND
3 DC OUT
4 DC GND
5 AUDIO OUT L
6 AUDIO GND
7 AUDIO OUT R
8 S IN
9 S-Y OUT
10 S-Y GND
11 S-C OUT
12 S-C GND
CN060 12P
D065 MAZV082DFL
D063 MAZV082DFL
D062 MAZV082DFL
D060 MA142WK-(TX)
J060
VIDEO OUT
RFU DC OUT
AUDIO OUT L
AUDIO OUT R
L061 100UH
L062 100UH
STEREO MODEL
TO TZ-5 BOARD CN651
2P CN61
LAMP_ON
LAMP_OFF
S061
ON
AUTO
OFF
VIDEO LIGHT MODEL
D061 MA111-TX
D64 MA8082-L/M/H-TX
LND060
CHASIS_GND
DS_VDW
EVF_Y
EVF_C
VIDEO_3V
TO (8/8) ㉗ (SEE PAGE 4-39)
EE_PB_Y
TO (3/8) ⑧ (SEE PAGE 4-20)
DA11 CAP_FG_DUTY
TO (6/8) ㊱ (SEE PAGE 4-28)
DA31 MTG
DA28 MT_Q
DA27 MT_FO
DA26 DOC_DET
DA25 REC_LOW_CONT
DA24 REC_C_CONT
DA23 REC_Y_CONT
TO (4/8) ㉒ (SEE PAGE 4-23)
DA10 HALL_OFFSET
DA09 HALL_GAIN
DA08 HALL_REF
DA07 VREF_C
DA06 VREF_Y
DA05 V_SUB_CONT
DA04 RG_CONT
DA03 AGC_CONT_2
DA02 AGC_CONT_1
DA01 AD_OFFSET
DA29 OSC_CONT
TO (2/8) ④ (SEE PAGE 4-16)
DA14 AU_BPF
DA13 1.7M_DEV
DA12 1.5M_DEV
TO (7/8) ㉘ (SEE PAGE 4-32)
DA22 CE_CONT
DA21 DEM_LEVEL
DA20 EMPH_LEVEL
DA19 D_CLIP
DA18 W_CLIP
DA17 CARR_CONT
DA16 DEV_CONT
DA15 SMEAR
TO (3/8) ⑥ (SEE PAGE 4-20)
RF_SWP
TO (6/8) ㊱ (SEE PAGE 4-28)
SCK1 MEC_SCK
SI1 MEC_SO
TO (2/8)(3/8)(6/8)(7/8) ⑩ (SEE PAGE 4-15, 20, 28, 32)
CS2 CS_DA
TO (6/8) ㊱ (SEE PAGE 4-28)
MODEL

SIGNAL PATH

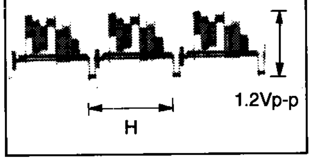
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	⇨	⇛	⇛	➡
PB	⇨	⇛		⇨

VC-167 BOARD

㊲ Q065 Ⓔ REC/PB

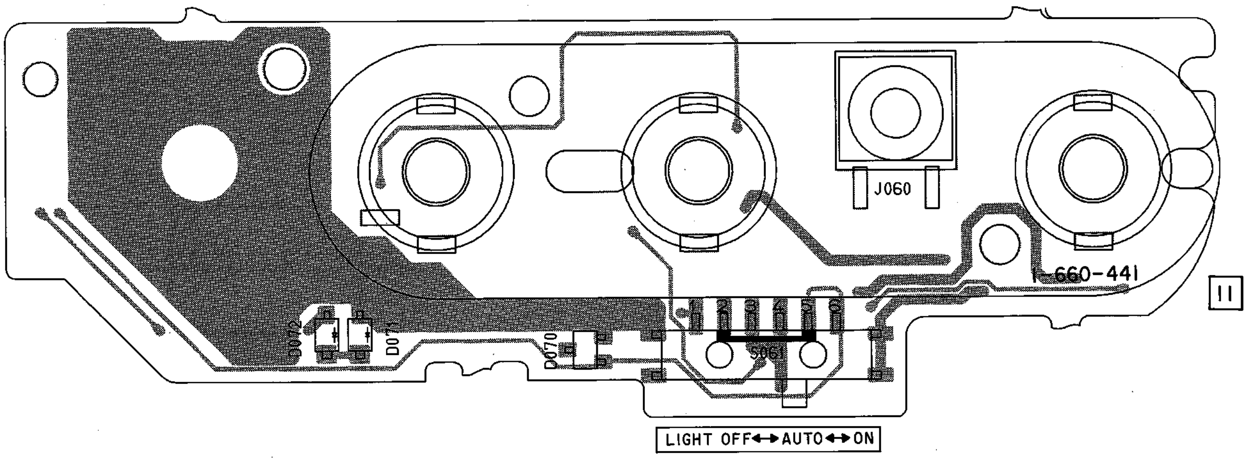


㊳ CN060 ① REC/PB

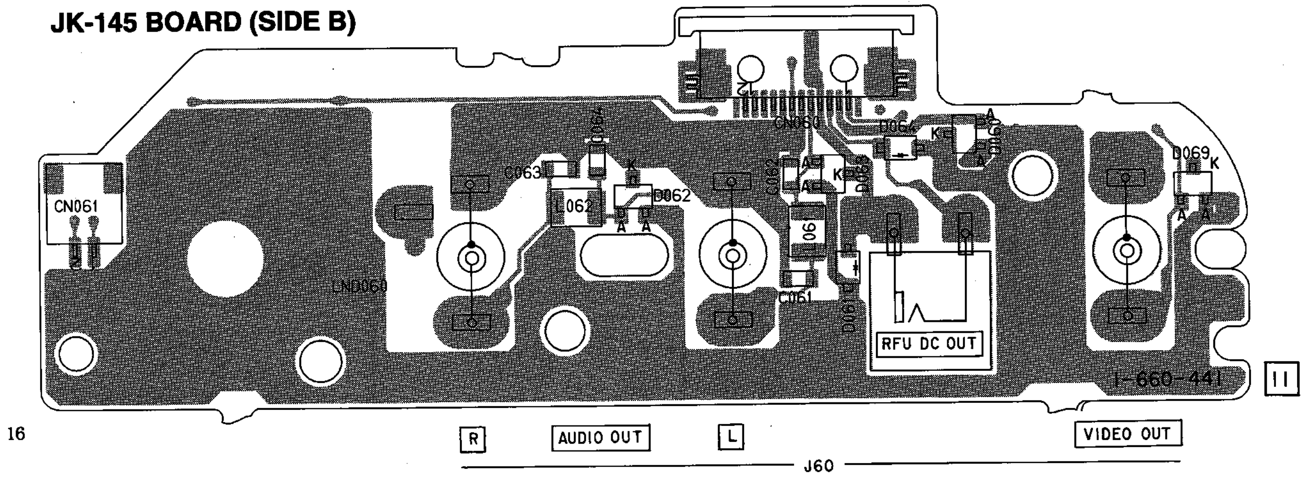


There are few cases that the part printed on this diagram isn't mounted in this model.

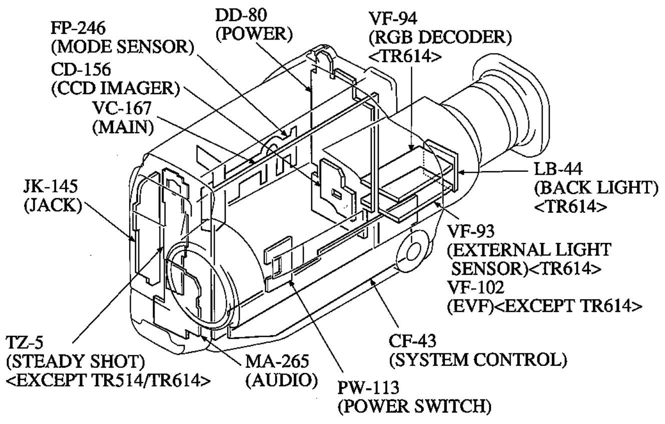
JK-145 BOARD (SIDE A)


J060
1-660-441
11
D072
D071
D070
S061
1
2
3
4
5
6
LIGHT OFF↔AUTO↔ON

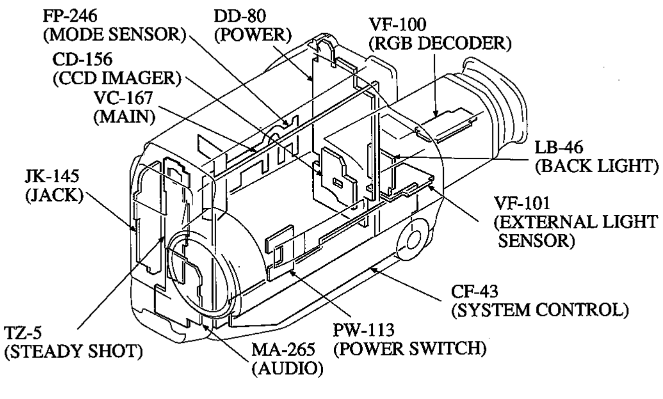
JK-145 BOARD (SIDE B)


CN061
CN060
C063
L062
D062
D064
D065
D066
D069
K
A
C062
D063
D060
C061
D061
RFU DC OUT
1-660-441
11
16
R
AUDIO OUT
L
VIDEO OUT
J60

TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL

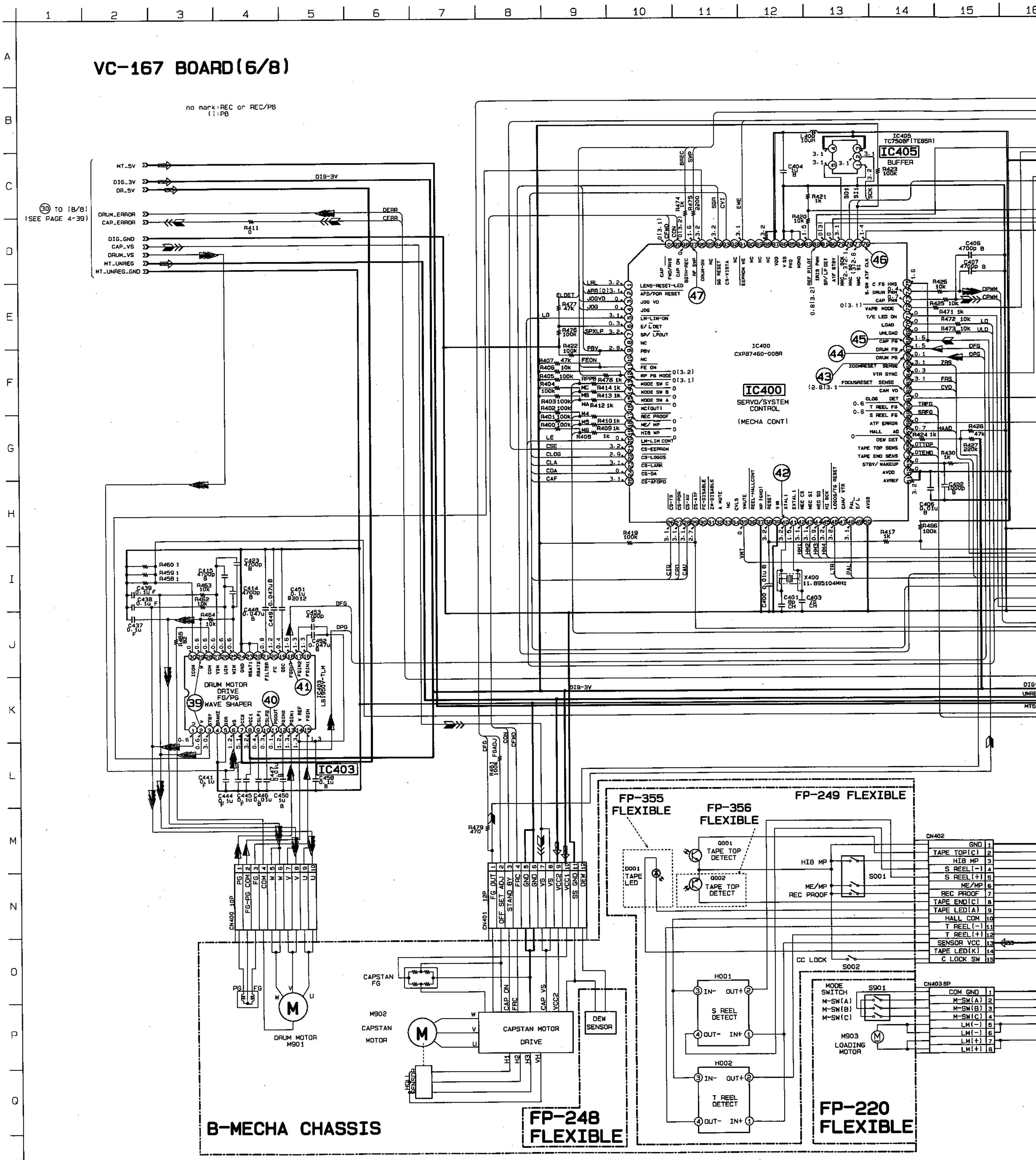

FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.

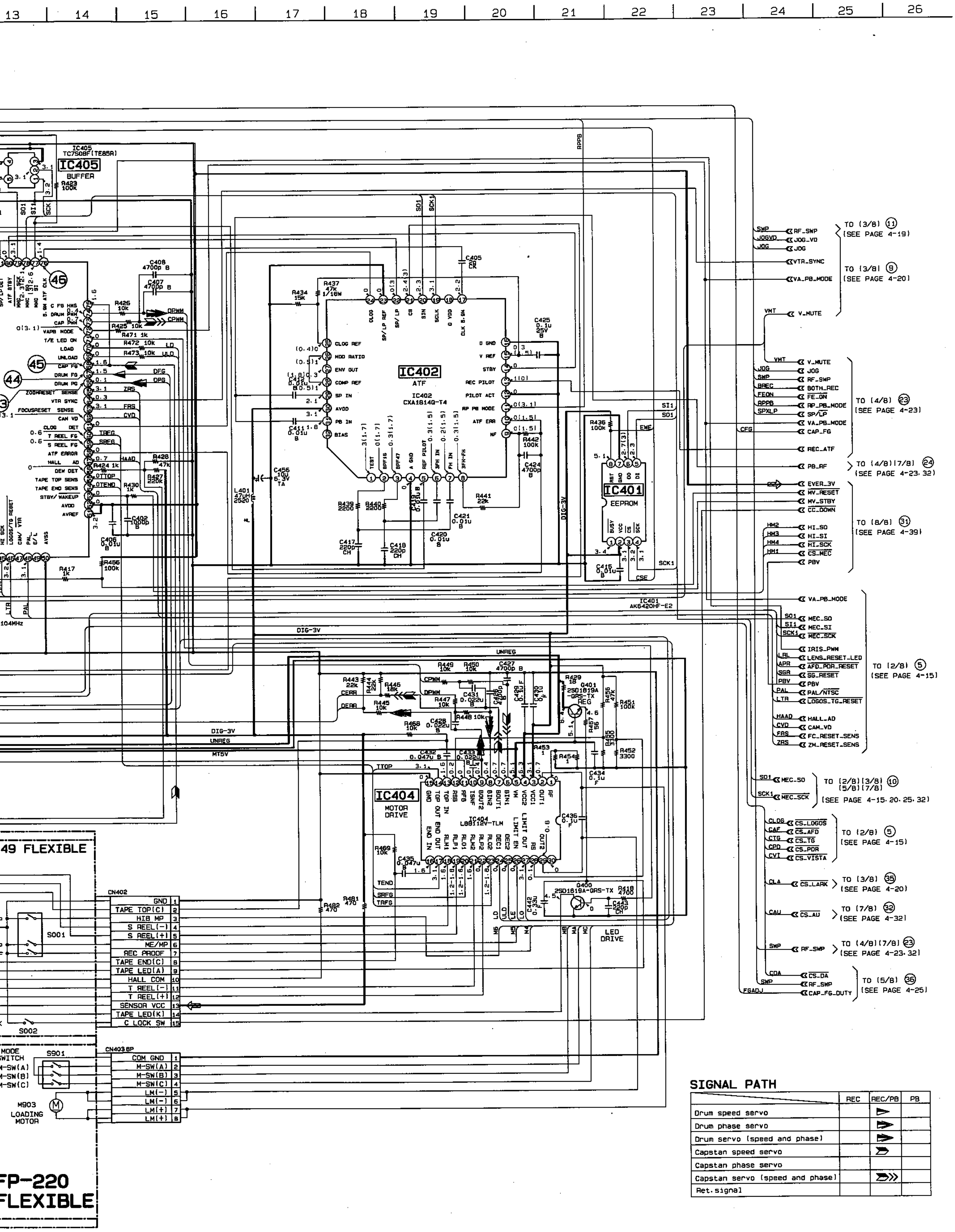

FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
PW-113
(POWER SWITCH)
MA-265
(AUDIO)

VC-167 (MODE CONTROL), FP-249 (MODE SENSOR) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS • See page 4-7 for VC-167 BOAR

— Ref. No. VC-167 Board; 1,000 Series, FP-249 Board; 5,000 Series —


VC-167 BOARD(6/8)
no mark:REC or REC/PB
( ):PB
(30) TO (8/8)
(SEE PAGE 4-39)
MT_5V
DIG_3V
DR_5V
DRUM_ERROR
CAP_ERROR
DIG_GND
CAP_VS
DRUM_VS
MT_UNREG
MT_UNREG_GND
DIG-3V
DERR
CERR
R411
IC400
CXP87450-008R
IC400
SERVO/SYSTEM
CONTROL
(MECHA CONT)
IC405
TC7S08F(TE85R)
IC405
BUFFER
L400
10uH
X400
11.895104MHz
IC403
LB1950V-TLM
DRUM MOTOR
DRIVE
FG/PG
WAVE SHAPER
IC403
(39)
(40)
(41)
(42)
(43)
(44)
(45)
(46)
(47)
CN400 10P
CN401 12P
DRUM MOTOR
M901
CAPSTAN FG
M902
CAPSTAN
MOTOR
CAPSTAN MOTOR
DRIVE
DEW
SENSOR
HOLL
SENSOR
B-MECHA CHASSIS
FP-248
FLEXIBLE
FP-355
FLEXIBLE
FP-356
FLEXIBLE
FP-249 FLEXIBLE
D001
TAPE
LED
Q001
TAPE TOP
DETECT
Q002
TAPE TOP
DETECT
HI8 MP
ME/MP
REC PROOF
S001
CC LOCK
S002
H001
S REEL
DETECT
H002
T REEL
DETECT
MODE
SWITCH
M-SW(A)
M-SW(B)
M-SW(C)
S901
M903
LOADING
MOTOR
FP-220
FLEXIBLE
CN402
GND
TAPE TOP(C)
HI8 MP
S REEL(-)
S REEL(+)
ME/MP
REC PROOF
TAPE END(C)
TAPE LED(A)
HALL COM
T REEL(-)
T REEL(+)
SENSOR VCC
TAPE LED(K)
C LOCK SW
CN403 8P
COM GND
M-SW(A)
M-SW(B)
M-SW(C)
LM(-)
LM(-)
LM(+)
LM(+)

See page 4-7 for VC-167 BOARD printed wiring board.

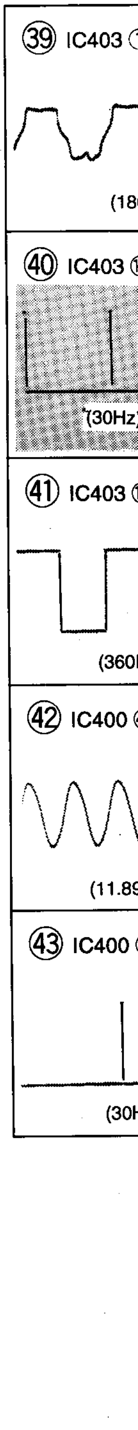


13
14
15
16
17
18
19
20
21
22
23
24
25
26
IC405
TC7S08F(TE85R)
IC405
BUFFER
R423 100K
IC402
ATF
CXA1814Q-T4
IC401
EEPROM
AK6420HF-E2
IC404
MOTOR DRIVE
LB8112V-TLM
Q401 2SD1819A-QRS-TX REG
Q400 2SD1819A-QRS-TX
LED DRIVE
L401 47uH 2520
DIG-3V
UNREG
MT5V
45
44
46
49 FLEXIBLE
FP-220 FLEXIBLE
CN402
GND
TAPE TOP(C)
HIB MP
S REEL(-)
S REEL(+)
ME/MP
REC PROOF
TAPE END(C)
TAPE LED(A)
HALL COM
T REEL(-)
T REEL(+)
SENSOR VCC
TAPE LED(K)
C LOCK SW
S001
S002
MODE SWITCH
S901
M-SW(A)
M-SW(B)
M-SW(C)
CN403 8P
COM GND
LM(-)
LM(+)
M903 LOADING MOTOR
RF_SWP
JOG_VD
JOG
VTR_SYNC
VA_PB_MODE
TO (3/8) ⑪ (SEE PAGE 4-19)
TO (3/8) ⑨ (SEE PAGE 4-20)
V_MUTE
BOTH_REC
FE_ON
RP_PB_MODE
SP/LP
CAP_FG
TO (4/8) ㉓ (SEE PAGE 4-23)
REC_ATF
PB_RF
TO (4/8)(7/8) ㉔ (SEE PAGE 4-23, 32)
EVER_3V
MV_RESET
MV_STBY
CC_DOWN
HI_SO
HI_SI
HI_SCK
CS_MEC
PBV
TO (8/8) ㉛ (SEE PAGE 4-39)
MEC_SO
MEC_SI
MEC_SCK
IRIS_PWM
LENS_RESET_LED
AFD_POR_RESET
SG_RESET
PAL/NTSC
LOGOS_TG_RESET
TO (2/8) ⑤ (SEE PAGE 4-15)
HALL_AD
CAM_VD
FC_RESET_SENS
ZM_RESET_SENS
TO (2/8)(3/8)(5/8)(7/8) ⑩ (SEE PAGE 4-15, 20, 25, 32)
CS_LOGOS
CS_AFD
CS_TG
CS_POR
CS_VISTA
TO (2/8) ⑤ (SEE PAGE 4-15)
CS_LARK
TO (3/8) ㉟ (SEE PAGE 4-20)
CS_AU
TO (7/8) ㉜ (SEE PAGE 4-32)
TO (4/8)(7/8) ㉓ (SEE PAGE 4-23, 32)
CS_DA
CAP_FG_DUTY
TO (5/8) ㊱ (SEE PAGE 4-25)

SIGNAL PATH

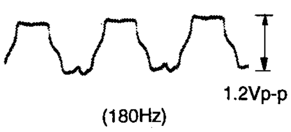
	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▶	
Drum servo (speed and phase)		▶	
Capstan speed servo		≫	
Capstan phase servo			
Capstan servo (speed and phase)		≫›	
Ret. signal			

VC-167

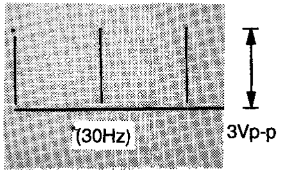


VC-167 BOARD

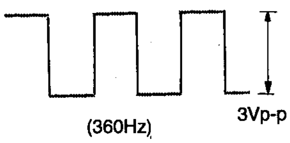
㊴ IC403 ①,② REC/PB



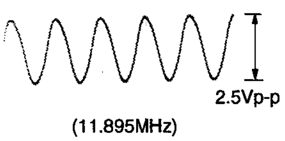
㊵ IC403 ⑪ REC/PB



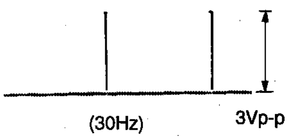
㊶ IC403 ⑱ REC/PB



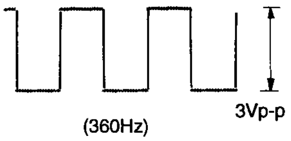
㊷ IC400 ㊵ REC/PB



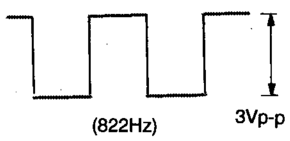
㊸ IC400 ㊻ REC/PB



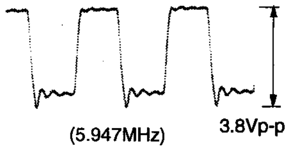
㊹ IC400 (67) REC/PB



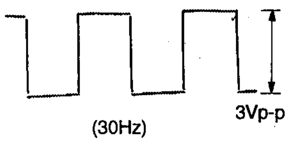
㊺ IC400 (68),(75) REC/PB



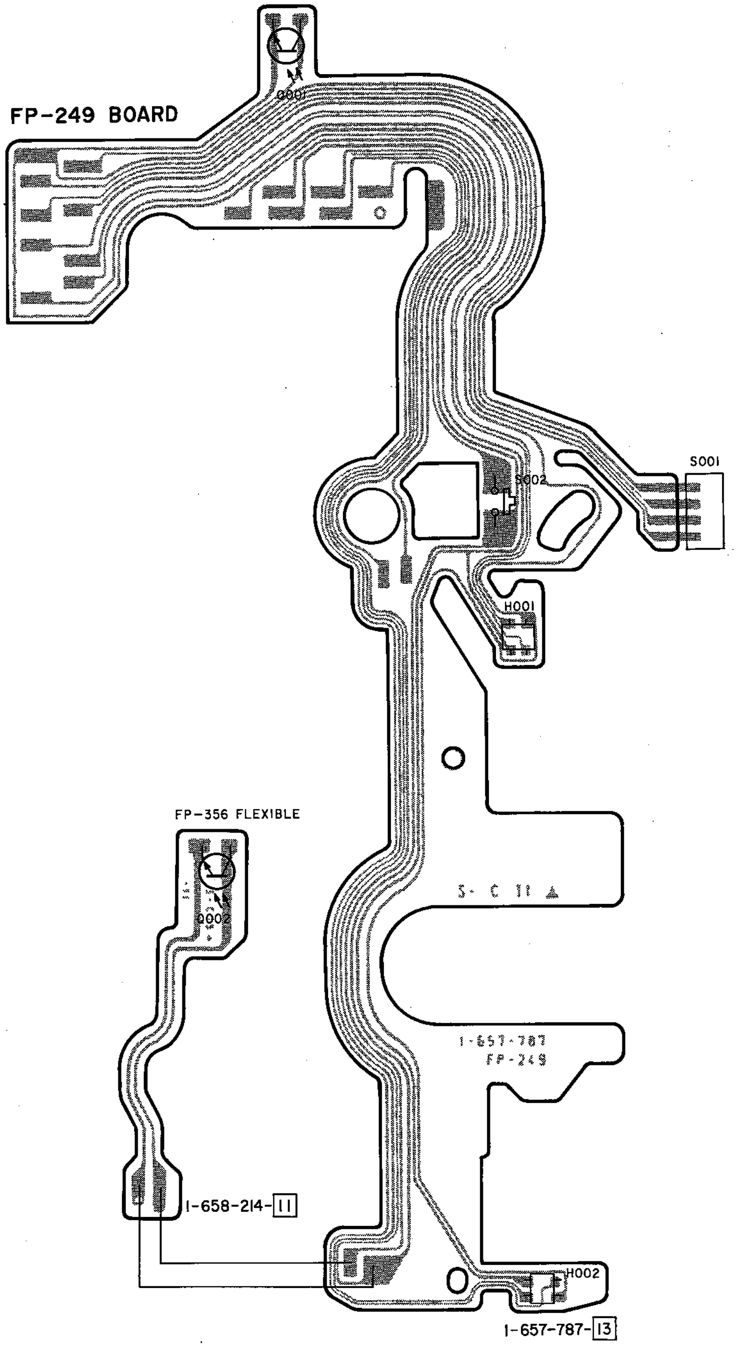
㊻ IC400 (76) REC/PB



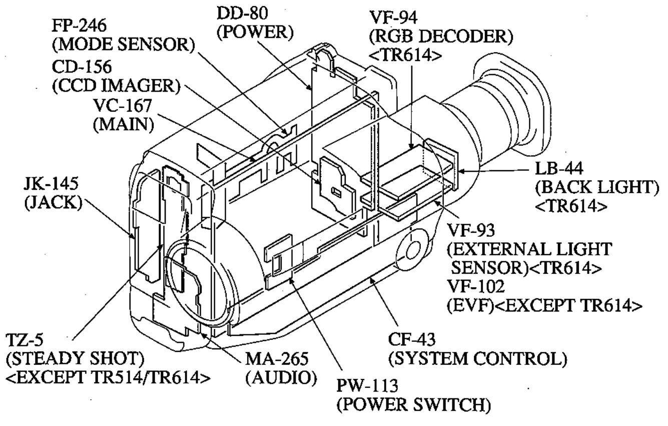
㊼ IC400 (97) REC/PB



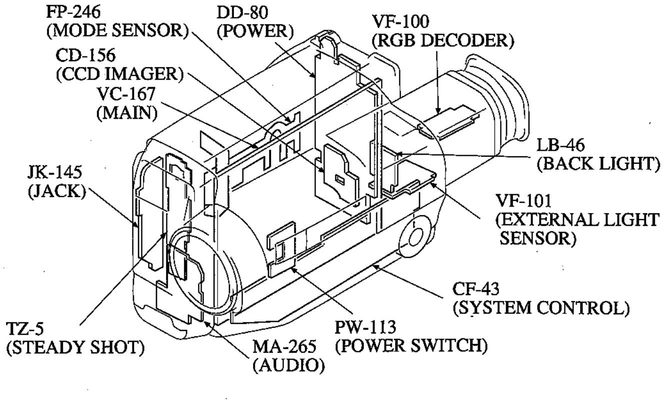
FP-249 BOARD


G001
S001
S002
H001
FP-356 FLEXIBLE
G002
S- C 11 ▲
1-657-787
FP-249
1-658-214-11
H002
1-657-787-13

TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

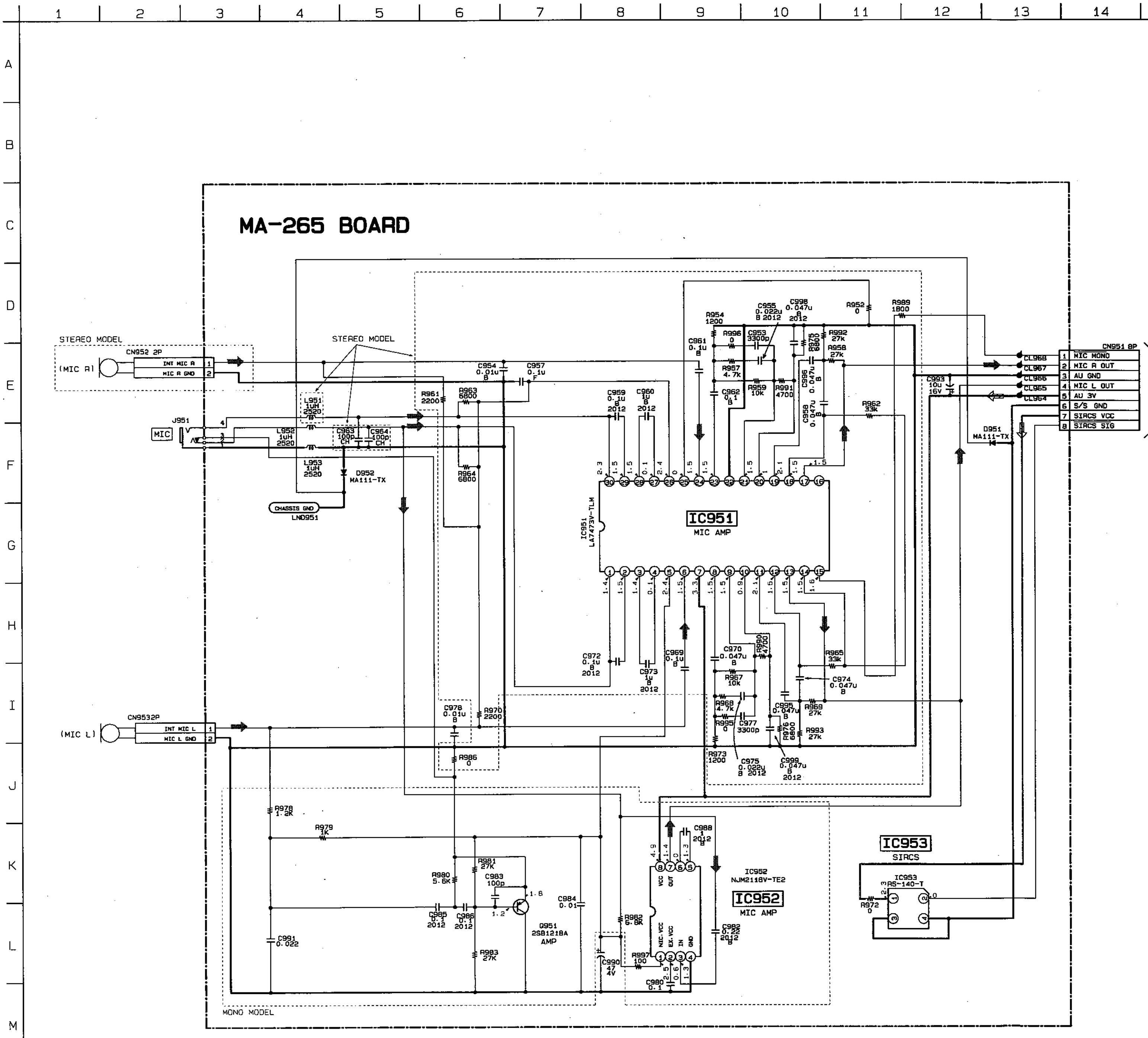
TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
MA-265
(AUDIO)
PW-113
(POWER SWITCH)

VC-167 (AUDIO AMP), MA-265 (AUDIO) SCHEMATIC DIAGRAMS

— Ref. No. VC-167 Board; 1,000 Series, MA-265 Board; 2,000 Series —

• See page 4-7 for VC-167 BOARD printed wiring boar

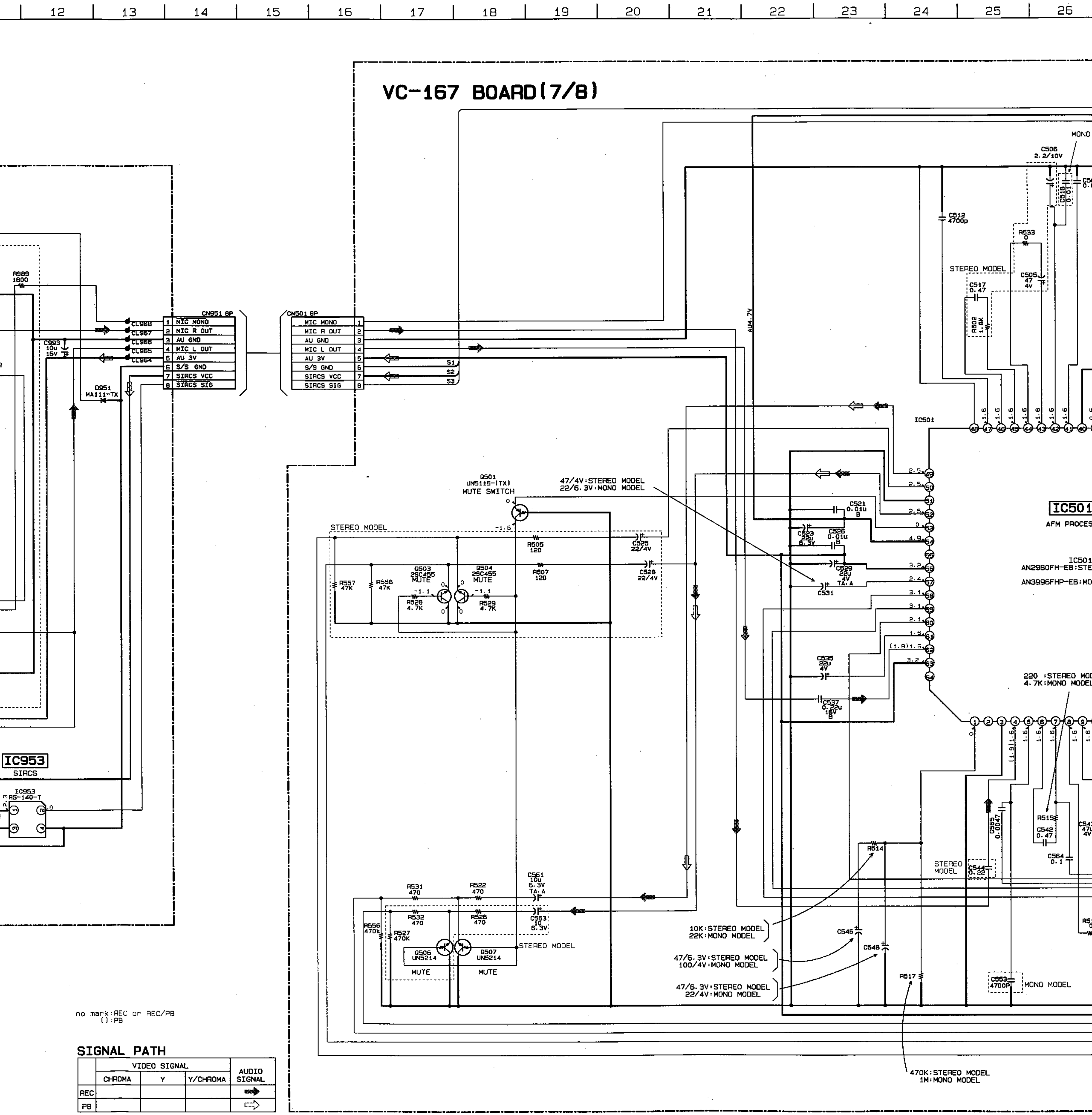

1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J K L M N O P
MA-265 BOARD
STEREO MODEL
CN952 2P
(MIC R)
INT MIC R
MIC R GND
STEREO MODEL
J951
MIC
L951 1uH 2520
L952 1uH 2520
L953 1uH 2520
C963 100p CH
C964 100p CH
D952 MA111-TX
CHASSIS GND
LND951
R961 2200
R963 6800
R964 6800
C954 0.01u B
C957 0.1u F
C959 0.1u B 2012
C960 1u B 2012
C961 0.1u B
R954 1200
R996 0
C953 3300p
C955 0.022u B 2012
C998 0.047u B 2012
R957 4.7k
C962 0.1 B
R959 10k
R991 4700
R975 6800
R992 27k
R958 27k
C996 0.047u B
C958 0.047u B
R952 0
R989 1800
R962 33k
C993 10u 16V
IC951 LA7473V-TLM
IC951
MIC AMP
C972 0.1u B 2012
C973 1u B 2012
C969 0.1u B
C970 0.047u B
R990 4700
R967 10k
R968 4.7k
R995 0
C977 3300p
R973 1200
C975 0.022u B 2012
C995 0.047u B
R976 6800
C999 0.047u B 2012
R965 33k
C974 0.047u B
R969 27k
R993 27k
CN951 8P
CL968
CL967
CL966
CL965
CL964
1 MIC MONO
2 MIC R OUT
3 AU GND
4 MIC L OUT
5 AU 3V
6 S/S GND
7 SIRCS VCC
8 SIRCS SIG
D951 MA111-TX
CN9532P
(MIC L)
INT MIC L
MIC L GND
C978 0.01u B
R970 2200
R986 0
R978 1.2K
R979 1K
R980 5.6K
R981 27K
C983 100p
C985 0.1 2012
C986 0.1 2012
R983 27K
C991 0.022
Q951 2SB1218A AMP
C984 0.01
R982 6.8K
C990 47 4V
R997 100
C980 0.1
C988 1 2012 B
C982 0.22 2012 B
IC952 NJM2118V-TE2
IC952
MIC AMP
VCC
OUT
MIC.VCC
EX.VCC
IN
GND
IC953
SIRCS
IC953 RS-140-T
R972 0
MONO MODEL

no mark:REC or REC/PB
( ):PB

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			
PB			

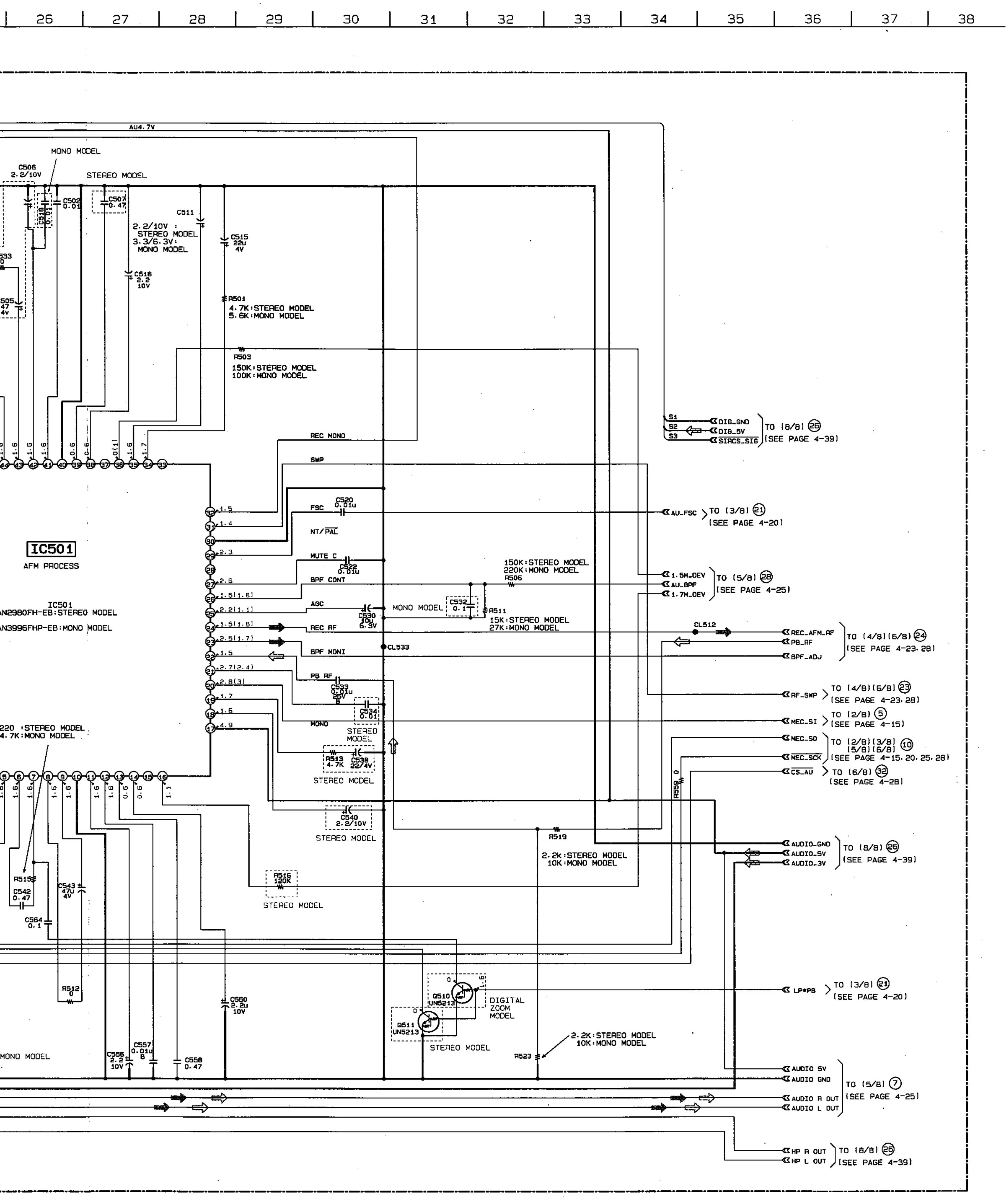
C-167 BOARD printed wiring board.


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
VC-167 BOARD(7/8)
CN951 8P
1 MIC MONO
2 MIC R OUT
3 AU GND
4 MIC L OUT
5 AU 3V
6 S/S GND
7 SIRCS VCC
8 SIRCS SIG
CN501 8P
CL968
CL967
CL966
CL965
CL964
R989 1800
C993 10u 16V
D951 MA111-TX
IC953
SIRCS
IC953 RS-140-T
S1
S2
S3
AU4.7V
IC501
AFM PROCES
IC501 AN2980FH-EB:STE
AN3996FHP-EB:MO
Q501 UN5115-(TX) MUTE SWITCH
47/4V:STEREO MODEL
22/6.3V:MONO MODEL
STEREO MODEL
R505 120
R507 120
C525 22/4V
C528 22/4V
Q503 2SC455 MUTE
Q504 2SC455 MUTE
R557 47K
R558 47K
R528 4.7K
R529 4.7K
C521 0.01u B
C523 22u 6.3V
C526 0.01u B
C529 22u 4V TA.A
C531
C535 22u 4V
C537 0.22u 16V B
C506 2.2/10V
MONO
C512 4700p
R533 0
STEREO MODEL
C505 47 4V
C517 0.47
R502 1.8K
220 :STEREO MOD
4.7K:MONO MODEL
R515
C542 0.47
C564 0.1
C565 0.0047
STEREO MODEL
C544 0.22
R514
C546
C548
R517
C553 4700P
MONO MODEL
10K:STEREO MODEL
22K:MONO MODEL
47/6.3V:STEREO MODEL
100/4V:MONO MODEL
47/6.3V:STEREO MODEL
22/4V:MONO MODEL
470K:STEREO MODEL
1M:MONO MODEL
R531 470
R522 470
R532 470
R526 470
C561 10u 6.3V TA.A
C563 10 6.3V
R556 470k
R527 470K
Q506 UN5214 MUTE
Q507 UN5214 MUTE
STEREO MODEL

no mark : REC or REC/PB
( ) : PB

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

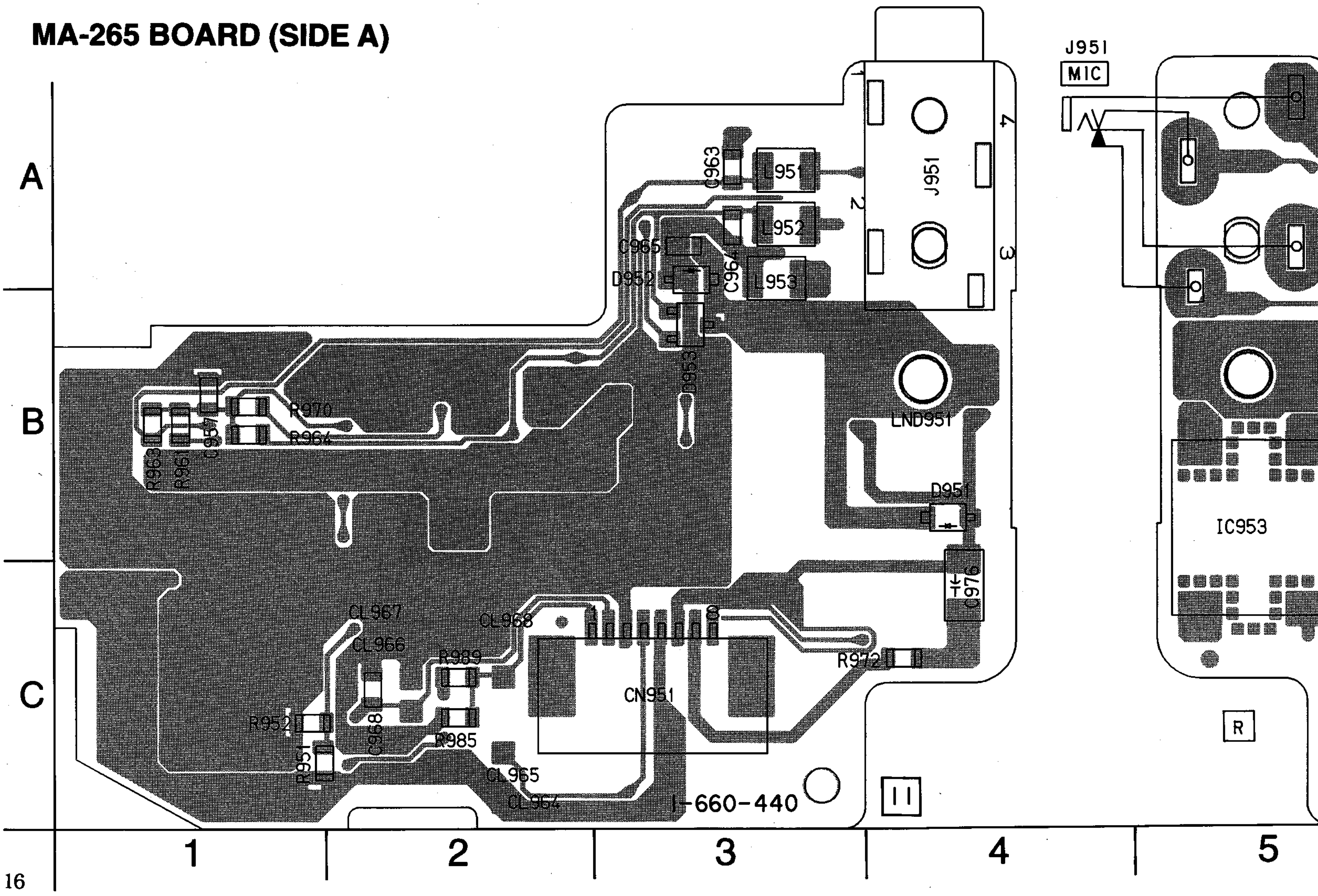

26
27
28
29
30
31
32
33
34
35
36
37
38
AU4.7V
MONO MODEL
C506 2.2/10V
STEREO MODEL
C502 0.01
C507 0.47
C518 0.01
C511
2.2/10V : STEREO MODEL
3.3/6.3V: MONO MODEL
C515 22u 4V
C516 2.2 10V
R501
4.7K:STEREO MODEL
5.6K:MONO MODEL
R503
150K:STEREO MODEL
100K:MONO MODEL
C505 47 4V
REC MONO
SWP
FSC
C520 0.01u
NT/PAL
MUTE C
C522 0.01u
BPF CONT
AGC
C530 10u 6.3V
REC RF
BPF MONI
CL533
PB RF
C533 0.01u 25V B
C534 0.01
MONO
STEREO MODEL
R513 4.7K
C538 22/4V
STEREO MODEL
C540 2.2/10V
STEREO MODEL
R516 120K
STEREO MODEL
IC501
AFM PROCESS
IC501
AN2980FH-EB:STEREO MODEL
AN3996FHP-EB:MONO MODEL
220 :STEREO MODEL
4.7K:MONO MODEL
150K:STEREO MODEL
220K:MONO MODEL
R506
MONO MODEL
C532 0.1
R511
15K:STEREO MODEL
27K:MONO MODEL
CL512
R559 0
R519
2.2K:STEREO MODEL
10K:MONO MODEL
R515
C542 0.47
C543 47u 4V
C564 0.1
R512 0
C550 2.2u 10V
C556 2.2 10V
C557 0.01u B
C558 0.47
MONO MODEL
Q510 UN5213
Q511 UN5213
DIGITAL ZOOM MODEL
STEREO MODEL
R523
2.2K:STEREO MODEL
10K:MONO MODEL
S1
S2
S3
DIG_GND
DIG_5V
SIRCS_SIG
TO (8/8) ㉖
(SEE PAGE 4-39)
AU_FSC
TO (3/8) ㉑
(SEE PAGE 4-20)
1.5M_DEV
AU_BPF
1.7M_DEV
TO (5/8) ㉘
(SEE PAGE 4-25)
REC_AFM_RF
PB_RF
BPF_ADJ
TO (4/8)(6/8) ㉔
(SEE PAGE 4-23, 28)
RF_SWP
TO (4/8)(6/8) ㉓
(SEE PAGE 4-23, 28)
MEC_SI
TO (2/8) ⑤
(SEE PAGE 4-15)
MEC_SO
MEC_SCK
TO (2/8)(3/8) (5/8)(6/8) ⑩
(SEE PAGE 4-15, 20, 25, 28)
CS_AU
TO (6/8) ㉜
(SEE PAGE 4-28)
AUDIO_GND
AUDIO_5V
AUDIO_3V
TO (8/8) ㉖
(SEE PAGE 4-39)
LP*PB
TO (3/8) ㉑
(SEE PAGE 4-20)
AUDIO 5V
AUDIO GND
AUDIO R OUT
AUDIO L OUT
TO (5/8) ⑦
(SEE PAGE 4-25)
HP R OUT
HP L OUT
TO (8/8) ㉖
(SEE PAGE 4-39)

MA-265 (AUDIO) PRINTED WIRING BOARD

— Ref. No. MA-265 Board; 2,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this mo

MA-265 BOARD (SIDE A)

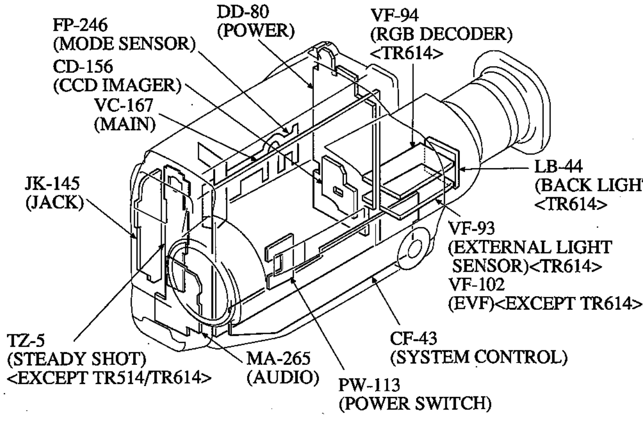


J951
MIC
A
B
C
1
2
3
4
5
C963
L951
L952
L953
C965
C964
D952
D953
J951
1
2
3
4
LND951
D951
C976
R972
R970
R964
C957
R963
R961
CL967
CL968
CL966
R989
CN951
R952
C968
R985
R951
CL965
CL964
1-660-440
11
R
IC953
16

MA-265 BOARD

C953	C–8	C980	B–6	D952	A–3	R961	B–1	R986	B–6
C954	B–7	C982	B–6			R962	C–7	R989	C–2
C955	C–8	C983	B–6	IC951	C–7	R963	B–1	R990	C–6
C957	B–1	C984	B–6	IC952	C–6	R964	B–1	R991	C–7
C958	C–7	C985	B–6	IC953	B–5	R965	C–7	R992	C–8
C959	B–8	C986	B–6			R967	C–6	R993	C–6
C960	B–7	C988	C–6	J951	A–4	R968	C–6	R995	C–6
C961	B–7	C990	B–8			R969	C–6	R996	C–8
C962	C–7	C991	A–6	L951	A–3	R970	B–1	R997	B–6
C963	A–3	C993	C–8	L952	A–3	R972	C–4		
C964	A–3	C996	C–7	L953	A–3	R973	B–6		
C969	B–7	C998	C–8			R975	C–8		
C970	C–6	C999	C–6	Q951	B–6	R976	C–6		
C972	B–6					R978	A–6		
C973	B–6	CN951	C–3	R952	C–1	R979	A–6		
C974	C–6	CN952	B–7	R954	C–8	R980	B–6		
C975	C–6	CN953	B–7	R957	C–8	R981	B–6		
C977	C–6			R958	C–7	R982	B–6		
C978	B–7	D951	B–4	R959	C–8	R983	A–6		

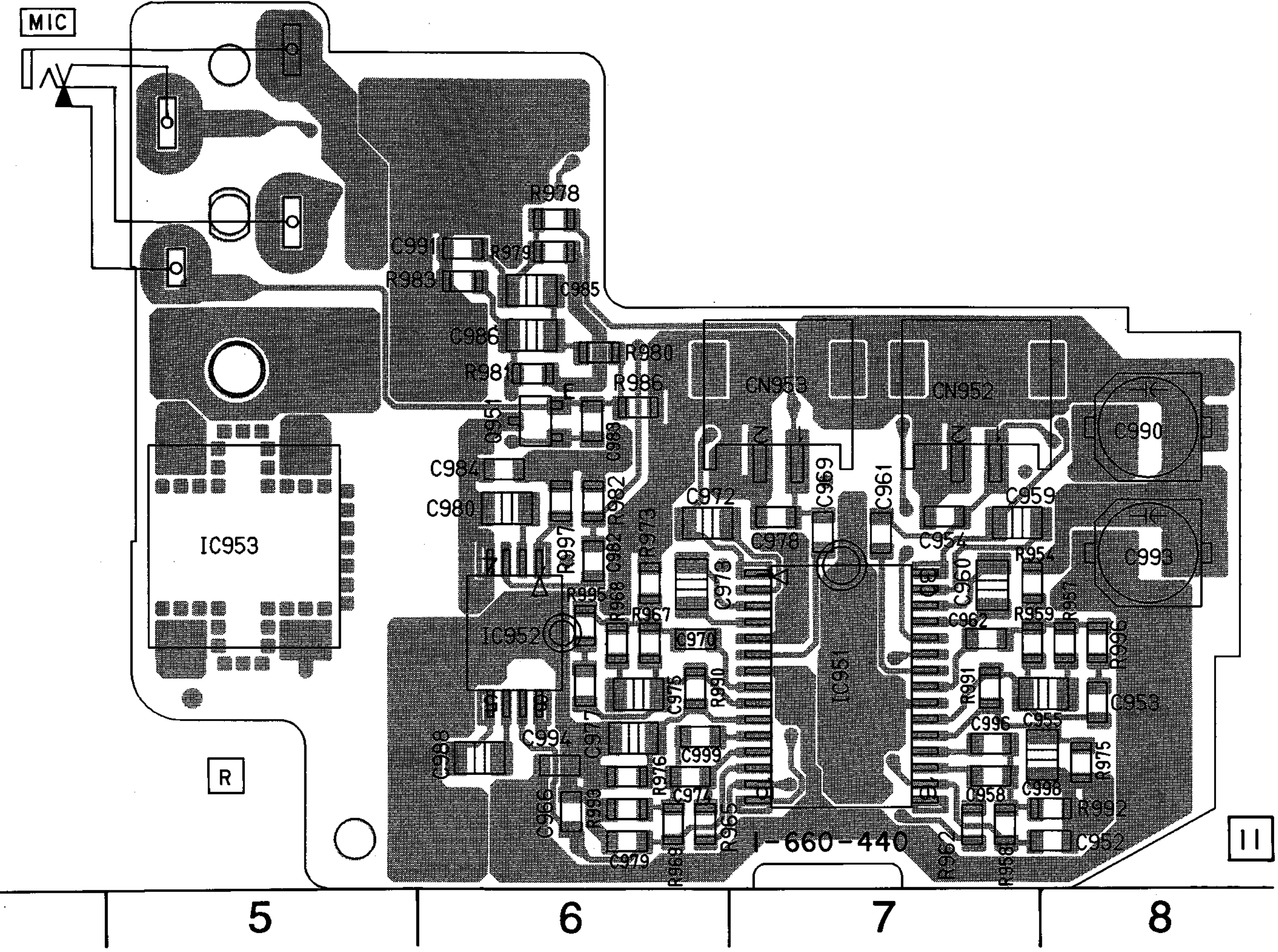
TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL



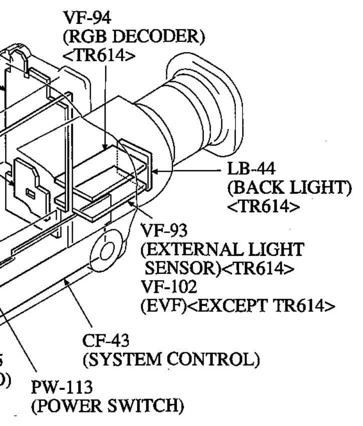
DD-80
(POWER)
FP-246
(MODE SENSOR)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGH
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

iagram isn't mounted in this model.

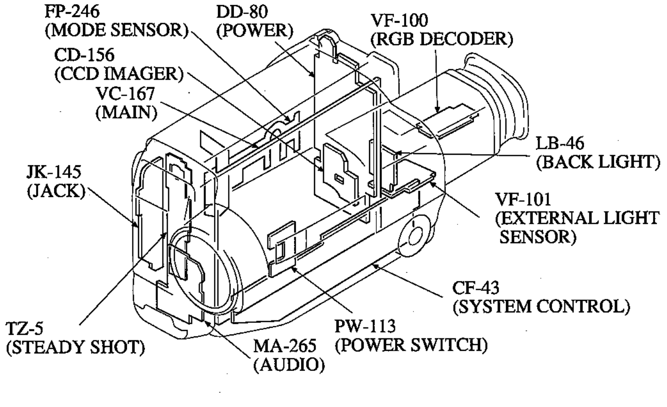
MA-265 BOARD (SIDE B)


J951
MIC
R978
C991
R979
R983
C985
C986
R980
R981
R986
Q951
C983
CN953
CN952
C990
C984
C980
R982
R973
C972
C969
C961
C959
C978
C954
R954
C993
IC953
IC952
R997
R995
R966
R967
C973
C970
C960
C962
R959
R957
R996
IC951
C976
R990
R991
C996
C955
C953
C988
C994
C977
R976
C999
R975
C998
C958
C966
R993
C974
R965
R992
C979
R968
1-660-440
R962
R958
C952
R
11
5
6
7
8

R and B/W EVF) MODEL


VF-94
(RGB DECODER)
<TR614>
LB-44
(BACK LIGHT)
<TR614>
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
PW-113
(POWER SWITCH)
MA-265
(AUDIO)

DD-80 (POWER) PRINTED WIRING BOARD

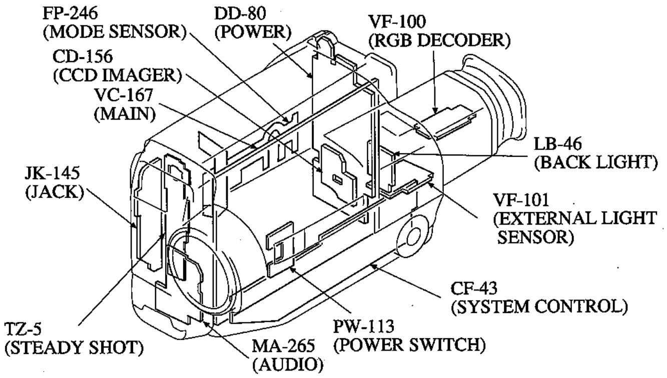
— Ref. No. DD-80 Board; 1,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this m

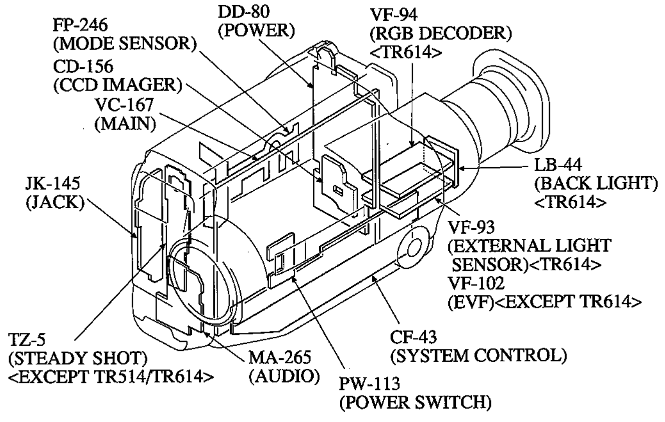
DD-80 BOARD

C001	E–2	C035	B–4	J001	B–1	Q010	A–1	R029	E–2		
C002	E–2	C036	F–6			Q011	E–2	R031	E–2		
C003	E–2	C037	B–4	L001	G–2	Q012	E–1	R033	B–7		
C004	E–2	C038	E–5	L002	G–3	Q013	E–3	R034	E–3		
C005	E–2	C039	F–6	L003	F–2			R036	E–4		
C006	B–2	C040	E–6	L004	F–2	R001	E–3				
C007	C–2	C041	E–6	L005	F–4	R002	E–2	S001	G–6		
C008	E–3	C042	E–5	L006	G–4	R003	E–3	S002	C–7		
C009	C–3	C043	E–6	L007	G–5	R004	B–2	S004	G–4		
C010	G–3	C044	F–6	L008	F–4	R005	E–2				
C011	G–3	C045	F–6	L009	F–5	R006	E–2	T001	G–4		
C012	G–3	C046	F–6	L010	C–5	R007	E–2				
C013	G–1	C047	B–3	L011	C–5	R008	C–2				
C014	E–3	C048	E–3	L012	C–6	R009	E–2				
C016	E–3	C049	A–1	L013	C–6	R010	E–2				
C018	B–3			L014	C–4	R014	F–3				
C019	C–3	CN002	E–2	L015	B–4	R015	D–3				
C022	B–3	CN003	E–5	L016	C–5	R016	E–3				
C023	E–3			L017	B–6	R017	B–3				
C024	E–3	D001	B–4	L018	B–6	R018	E–3				
C025	E–3	D002	F–7			R019	E–3				
C026	B–3	D003	E–2	Q001	B–5	R020	B–3				
C027	E–3	D004	E–2	Q002	A–5	R021	B–3				
C028	B–4			Q003	A–4	R022	E–3				
C029	B–5	F001	F–1	Q004	B–4	R023	C–7				
C030	A–4	F002	G–1	Q005	B–4	R024	C–4				
C031	E–4	F003	G–1	Q006	B–4	R025	C–4				
C032	F–4	F004	G–1	Q007	B–5	R026	C–4				
C033	G–6			Q008	C–4	R027	A–6				
C034	E–5	IC001	C–3	Q009	E–3	R028	C–2				

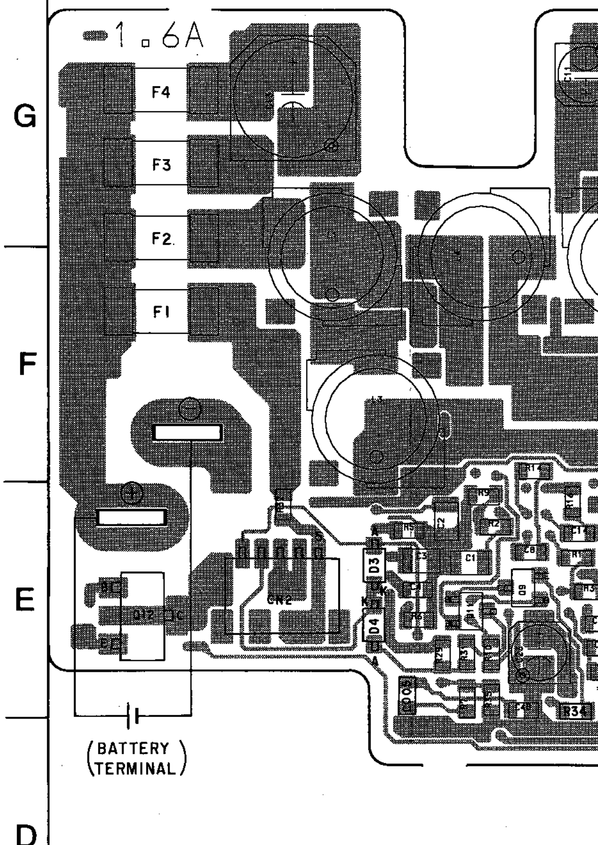
TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
PW-113
(POWER SWITCH)
MA-265
(AUDIO)

TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

DD-80 BOARD (SIDE A)


G
F
E
D
1.6A
F4
F3
F2
F1
Q12
CN2
D3
D4
(BATTERY
TERMINAL)

DD-80 BOARD (SIDE B)

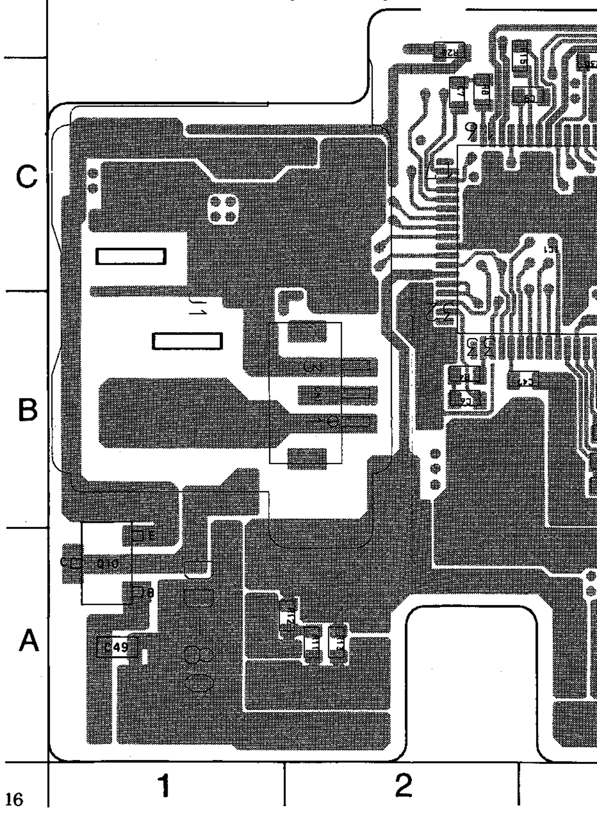
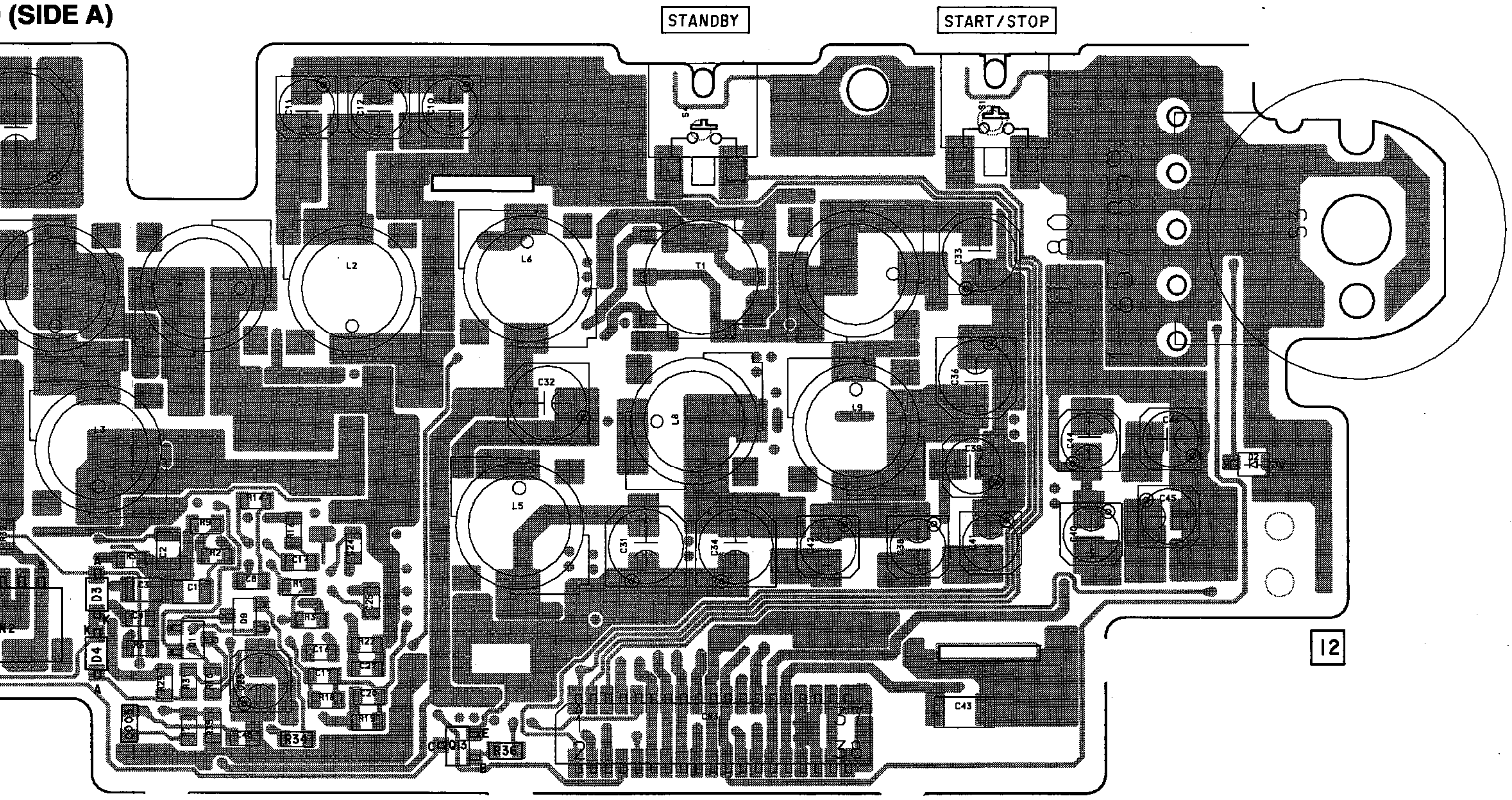
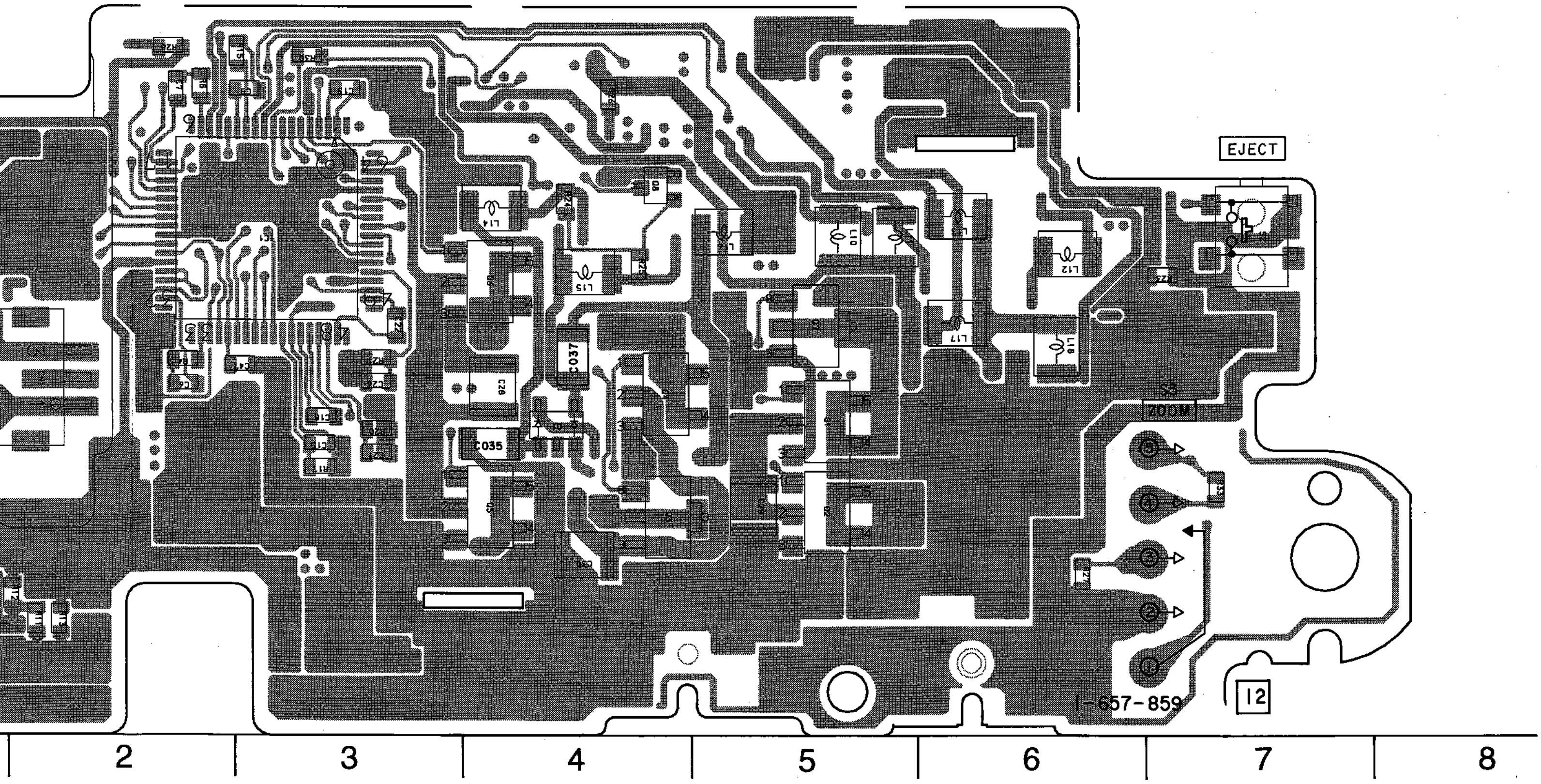

C
B
A
Q10
R49
16
1
2

diagram isn't mounted in this model.

(SIDE A)


STANDBY
START/STOP
L2
L6
T1
L7
L8
L9
L5
C32
C33
C36
C39
C31
C34
C43
C44
C45
D3
D4
C1
R34
R36
12

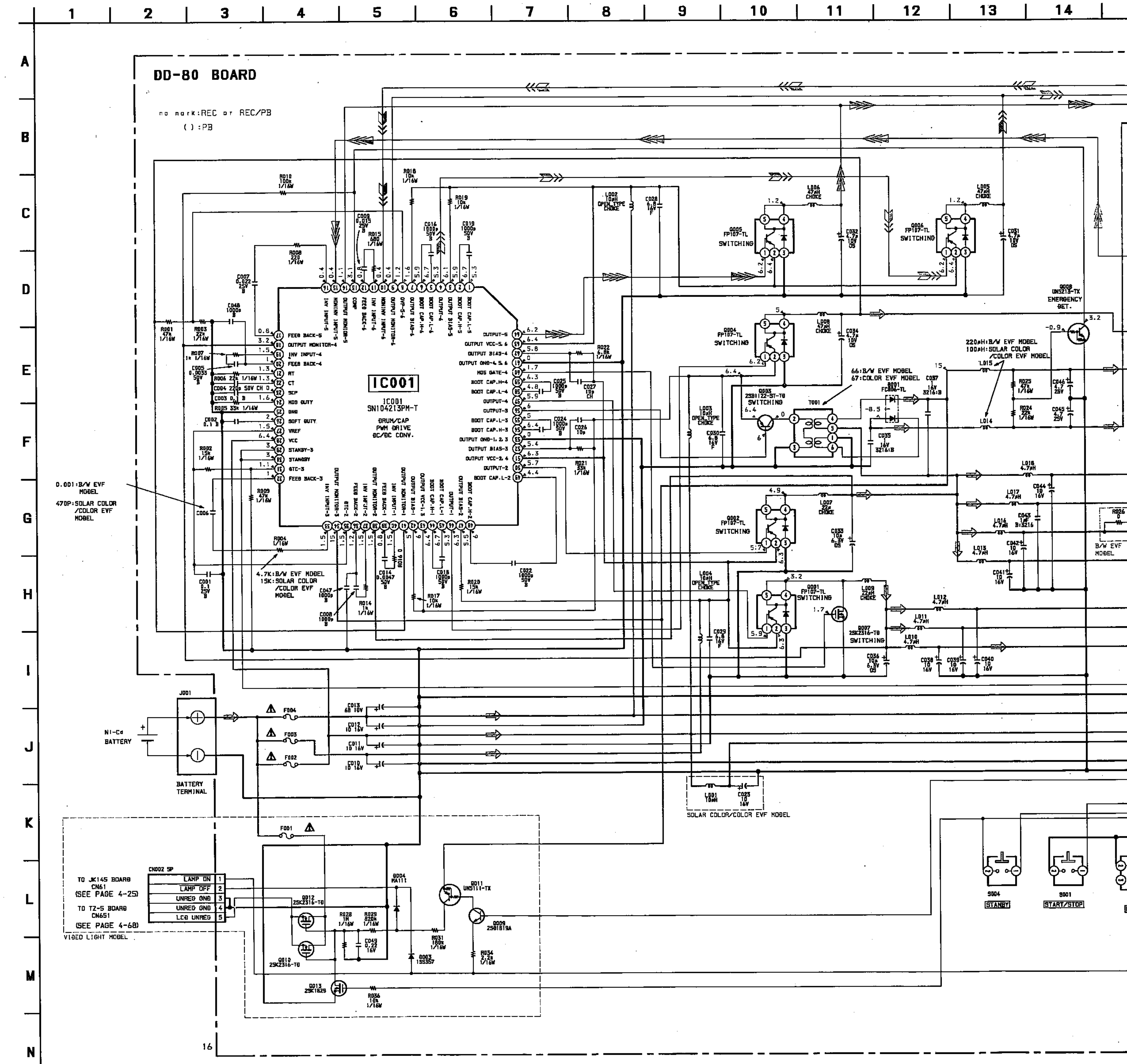
(SIDE B)


EJECT
S3
ZOOM
C035
C037
L14
L15
L10
L12
L17
L18
1-657-859
12
2
3
4
5
6
7
8

DD-80 (POWER), VC-167 (VTR SWITCH) SCHEMATIC DIAGRAMS

• See page 4-7 for VC-167 BOARD printed wiring board.

— Ref. No. DD-80 Board, VC-167 Board; 1,000 Series —



1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
K
L
M
N
DD-80 BOARD
no mark:REC or REC/PB
( ):PB
IC001
IC001
SN104213PM-T
DRUM/CAP
PWM DRIVE
DC/DC CONV.
Q005
FP107-TL
SWITCHING
Q006
FP107-TL
SWITCHING
Q004
FP107-TL
SWITCHING
Q002
FP107-TL
SWITCHING
Q001
FP107-TL
SWITCHING
Q003
2SB1122-ST-TB
SWITCHING
Q007
2SK2316-TB
SWITCHING
Q008
UN5213-TX
EMERGENCY
DET.
T001
220μH:B/W EVF MODEL
100μH:SOLAR COLOR
/COLOR EVF MODEL
66:B/W EVF MODEL
67:COLOR EVF MODEL
0.001:B/W EVF MODEL
470P:SOLAR COLOR
/COLOR EVF MODEL
4.7K:B/W EVF MODEL
15K:SOLAR COLOR
/COLOR EVF MODEL
B/W EVF MODEL
J001
Ni-Cd
BATTERY
BATTERY
TERMINAL
F004
F003
F002
F001
L001
C023
SOLAR COLOR/COLOR EVF MODEL
CN002 5P
TO JK145 BOARD
CN61
(SEE PAGE 4-25)
TO TZ-5 BOARD
CN651
(SEE PAGE 4-68)
VIDEO LIGHT MODEL
LAMP ON
LAMP OFF
UNREG GND
UNREG GND
LCD UNREG
Q012
2SK2316-TB
Q010
2SK2316-TB
Q013
2SK1829
D004
MA111
Q011
UN5111-TX
Q009
2SB1619A
D003
1SS357
S004
STANDBY
S001
START/STOP
16

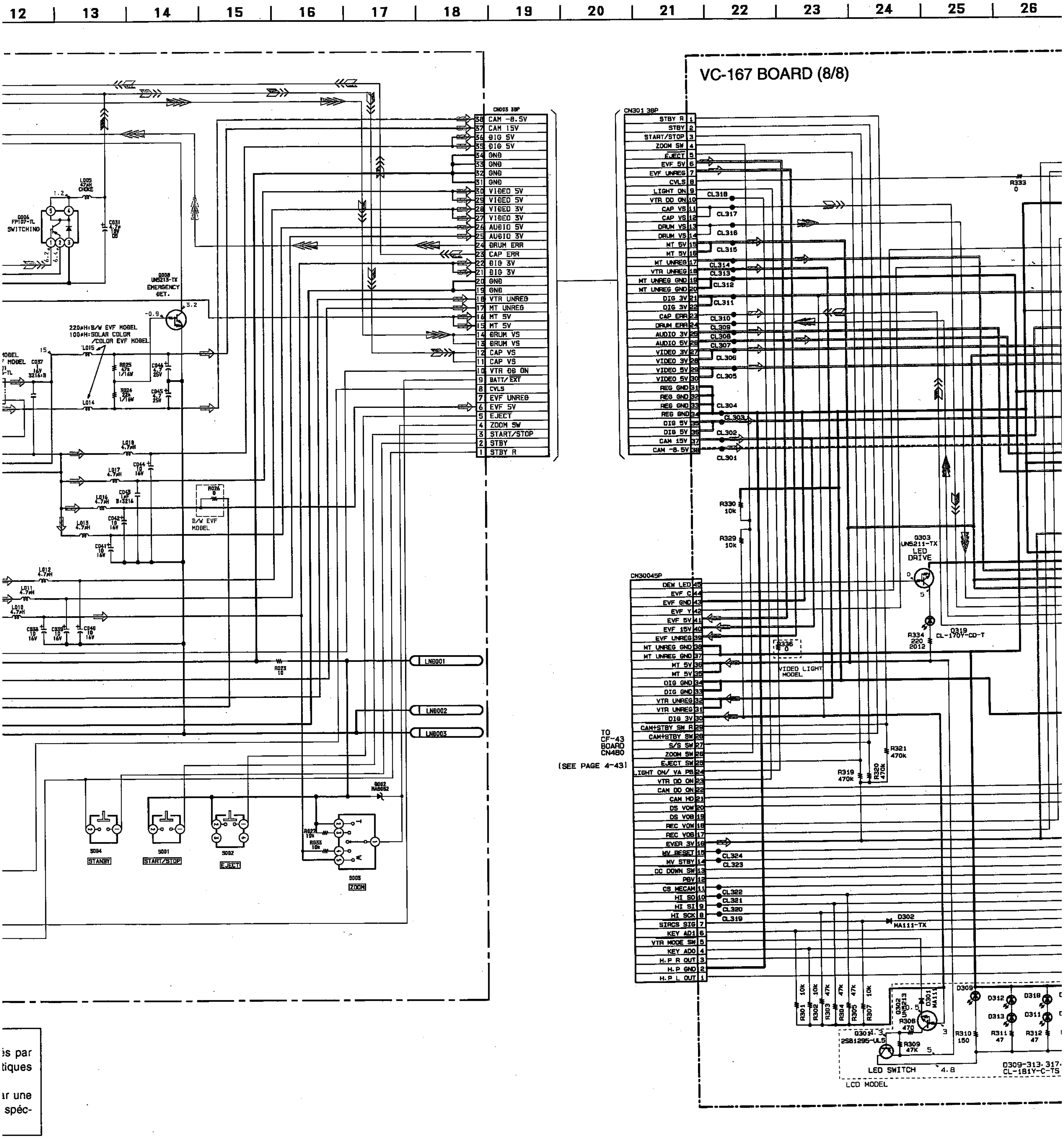
-SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo			
Drum phase servo			
Drum servo (speed and phase)		⇛	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		⇒»	
Ref.signal			

Note:
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified

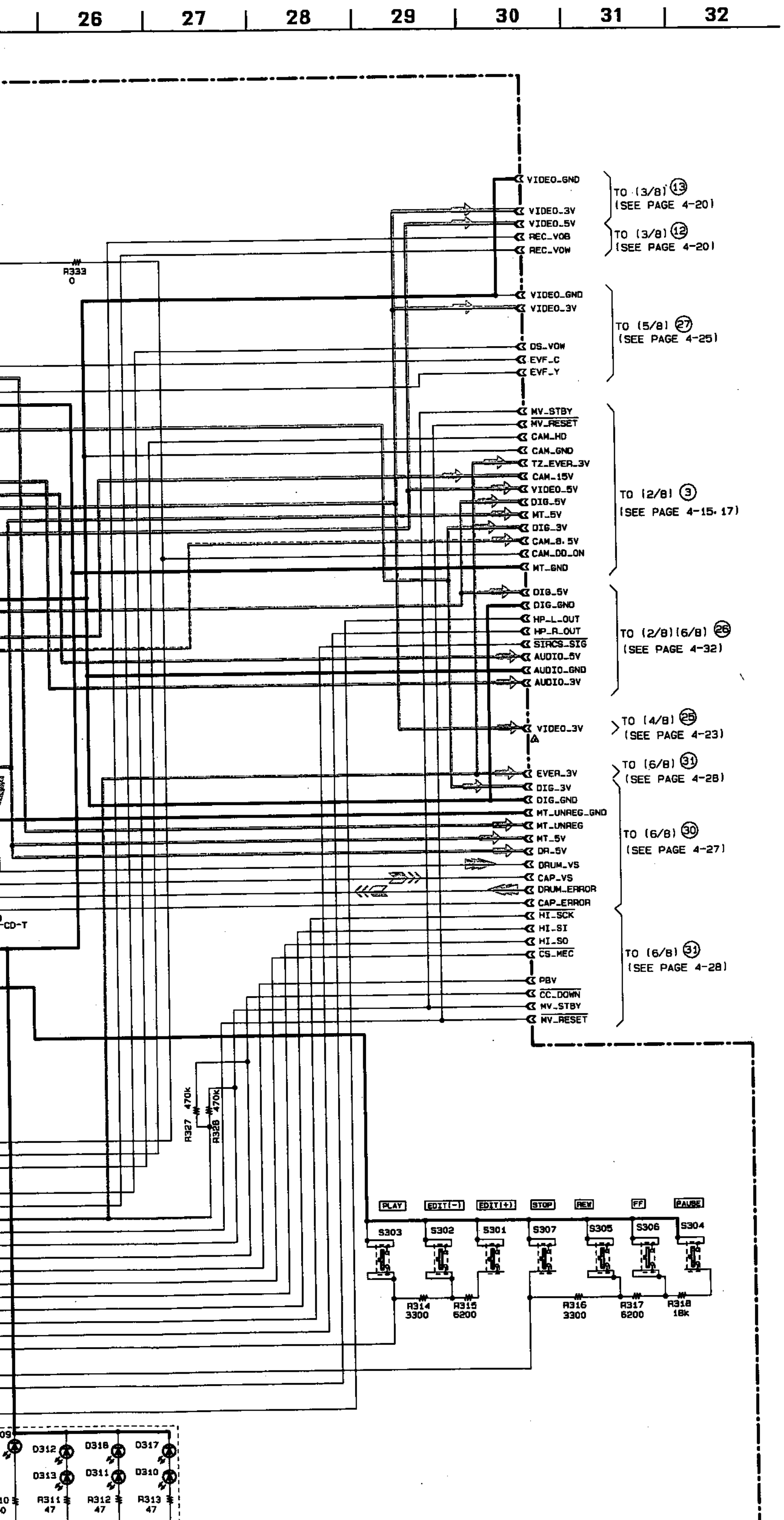
Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifie.

OARD printed wiring board.


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
VC-167 BOARD (8/8)
CN003 38P
38 CAM -8.5V
37 CAM 15V
36 DIG 5V
35 DIG 5V
34 GND
33 GND
32 GND
31 GND
30 VIDEO 5V
29 VIDEO 5V
28 VIDEO 3V
27 VIDEO 3V
26 AUDIO 5V
25 AUDIO 3V
24 DRUM ERR
23 CAP ERR
22 DIG 3V
21 DIG 3V
20 GND
19 GND
18 VTR UNREG
17 MT UNREG
16 MT 5V
15 MT 5V
14 DRUM VS
13 DRUM VS
12 CAP VS
11 CAP VS
10 VTR DD ON
9 BATT/EXT
8 CVLS
7 EVF UNREG
6 EVF 5V
5 EJECT
4 ZOOM SW
3 START/STOP
2 STBY
1 STBY R
CN301 38P
STBY R 1
STBY 2
START/STOP 3
ZOOM SW 4
EJECT 5
EVF 5V 6
EVF UNREG 7
CVLS 8
LIGHT ON 9
VTR DD ON 10
CAP VS 11
CAP VS 12
DRUM VS 13
DRUM VS 14
MT 5V 15
MT 5V 16
MT UNREG 17
VTR UNREG 18
MT UNREG GND 19
MT UNREG GND 20
DIG 3V 21
DIG 3V 22
CAP ERR 23
DRUM ERR 24
AUDIO 3V 25
AUDIO 5V 26
VIDEO 3V 27
VIDEO 3V 28
VIDEO 5V 29
VIDEO 5V 30
REG GND 31
REG GND 32
REG GND 33
REG GND 34
DIG 5V 35
DIG 5V 36
CAM 15V 37
CAM -8.5V 38
CL318
CL317
CL316
CL315
CL314
CL313
CL312
CL311
CL310
CL309
CL308
CL307
CL306
CL305
CL304
CL303
CL302
CL301
R333 0
R330 10k
R329 10k
Q303 UN5211-TX LED DRIVE
D319 CL-170Y-CD-T
R334 220 2012
R336 0
VIDEO LIGHT MODEL
CN300 45P
DEW LED 45
EVF C 44
EVF GND 43
EVF Y 42
EVF 5V 41
EVF 15V 40
EVF UNREG 39
MT UNREG GND 38
MT UNREG GND 37
MT 5V 36
MT 5V 35
DIG GND 34
DIG GND 33
VTR UNREG 32
VTR UNREG 31
DIG 3V 30
CAM+STBY SW R 29
CAM+STBY SW 28
S/S SW 27
ZOOM SW 26
EJECT SW 25
LIGHT ON/ VA PB 24
VTR DD ON 23
CAM DD ON 22
CAM HD 21
DS VOW 20
DS VOB 19
REC VOW 18
REC VOB 17
EVER 3V 16
MV RESET 15
MV STBY 14
CC DOWN SW 13
PBV 12
CS MECAM 11
HI SO 10
HI SI 9
HI SCK 8
SIRCS SIG 7
KEY AD1 6
VTR MODE SW 5
KEY AD0 4
H.P R OUT 3
H.P GND 2
H.P L OUT 1
CL324
CL323
CL322
CL321
CL320
CL319
TO CF-43 BOARD CN480 (SEE PAGE 4-43)
R321 470k
R319 470k
R320 470k
D302 MA111-TX
R301 10k
R302 10k
R303 47k
R304 47k
R305 47k
R307 10k
Q302 UN5213
D301 MA111
R308 470
Q304 2SB1295-UL5
R309 47K
LED SWITCH
LCD MODEL
D309
D312
D313
D318
D311
R310 150
R311 47
R312 47
D309-313, 317, CL-181Y-C-TS
L005 47µH CHOKE
Q006 FP107-TL SWITCHING
C031 4.7 16V CS
Q008 UN5213-TX EMERGENCY DET.
220µH:B/W EVF MODEL
100µH:SOLAR COLOR /COLOR EVF MODEL
L015
R025 47k 1/16W
R024 22k 1/16W
C046 4.7 25V
C045 4.7 25V
L014
C037 1 16V 3216
L018 4.7µH
L017 4.7µH
C044 10 16V
L016 4.7µH
C043 1µF B:3216
L013 4.7µH
C042 10 16V
C041 10 16V
R026 0
B/W EVF MODEL
L012 4.7µH
L011 4.7µH
L010 4.7µH
C038 10 16V
C039 10 16V
C040 10 16V
R023 10
LN0001
LN0002
LN0003
D002 MA6082
S004 STANBY
S001 START/STOP
S002 EJECT
R027 10k
R033 10k
S003 ZOOM
T
W

ès par
tiques

ar une
spéc-


26
27
28
29
30
31
32
R333
0
VIDEO_GND
VIDEO_3V
VIDEO_5V
REC_VOB
REC_VOW
TO (3/8) ⑬
(SEE PAGE 4-20)
TO (3/8) ⑫
(SEE PAGE 4-20)
VIDEO_GND
VIDEO_3V
DS_VOW
EVF_C
EVF_Y
TO (5/8) ㉗
(SEE PAGE 4-25)
MV_STBY
MV_RESET
CAM_HD
CAM_GND
TZ_EVER_3V
CAM_15V
VIDEO_5V
DIG_5V
MT_5V
DIG_3V
CAM_8.5V
CAM_DD_ON
MT_GND
TO (2/8) ③
(SEE PAGE 4-15, 17)
DIG_5V
DIG_GND
HP_L_OUT
HP_R_OUT
SIRCS_SIG
AUDIO_5V
AUDIO_GND
AUDIO_3V
TO (2/8)(6/8) ㉖
(SEE PAGE 4-32)
VIDEO_3V
TO (4/8) ㉕
(SEE PAGE 4-23)
EVER_3V
TO (6/8) ㉛
(SEE PAGE 4-28)
DIG_3V
DIG_GND
MT_UNREG_GND
MT_UNREG
MT_5V
DR_5V
DRUM_VS
CAP_VS
DRUM_ERROR
CAP_ERROR
TO (6/8) ㉚
(SEE PAGE 4-27)
HI_SCK
HI_SI
HI_SO
CS_MEC
PBV
CC_DOWN
MV_STBY
MV_RESET
TO (6/8) ㉛
(SEE PAGE 4-28)
CD-T
R327 470k
R328 470k
PLAY
EDIT(-)
EDIT(+)
STOP
REW
FF
PAUSE
S303
S302
S301
S307
S305
S306
S304
R314
3300
R315
6200
R316
3300
R317
6200
R318
18k
D312
D318
D317
D313
D311
D310
R311
47
R312
47
R313
47
D309-313, 317, 318
CL-181Y-C-TS

CF-43 (SYSTEM CONTROL), PW-113 (POWER SWITCH) PRINTED WIRING BOARDS

— Ref. No. CF-43 Board, PW-113 Board; 2,000 Series —

There are few cases that the p

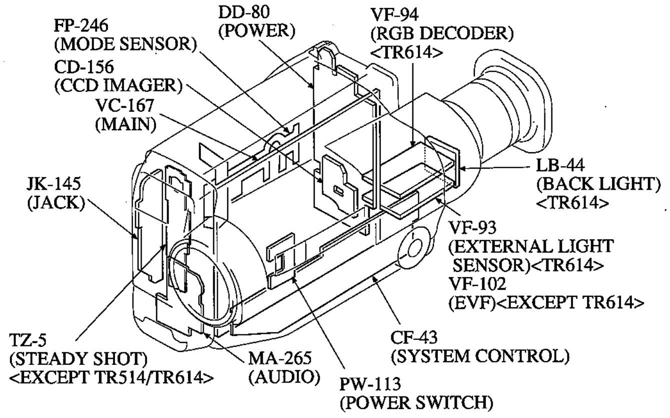
CF-43 BOARD

BH480	B-8	D300	C-2	L302	F-1	R324	A-4	R363	E-3	R487	F-8
		D301	C-2	PS301	G-4	R325	F-4	R364	D-3	R490	F-4
BZ480	A-5	D303	F-7			R326	B-3	R365	G-2	R491	F-1
		D304	G-7	Q300	G-4	R327	F-4	R366	B-6	R492	E-1
C300	E-5	D309	G-1	Q301	G-6	R328	G-4	R367	F-6	R493	F-1
C301	B-3	D310	G-1	Q302	G-5	R329	G-4	R368	G-8	R494	E-1
C302	B-3	D312	G-7	Q303	F-6	R330	G-4	R370	E-3	R495	E-1
C303	B-4	D314	F-6	Q304	F-6	R331	G-5	R371	E-3	R496	E-1
C304	B-4	D315	G-6	Q305	B-4	R332	F-5	R372	E-3	R497	E-1
C305	B-4	D316	B-5	Q309	F-8	R333	F-5	R373	E-3	R499	E-2
C306	G-4	D317	F-4	Q310	F-8	R334	F-5	R374	F-3	R500	F-4
C308	F-5	D318	G-1	Q311	F-9	R336	G-6	R375	C-3	R501	F-8
C310	F-5	D321	F-7			R337	F-6	R376	E-5	R502	F-8
C311	F-5	D323	E-2	R300	C-6	R338	G-6	R377	E-5	R503	F-8
C312	E-4	D324	E-2	R301	C-3	R339	G-2	R378	B-3	R504	G-4
C313	G-5	D325	F-7	R303	F-3	R340	G-2	R379	F-5		
C314	F-6	D327	F-8	R304	F-9	R341	F-8	R380	B-5	S300	E-6
C315	C-3	D328	F-8	R305	F-9	R342	F-8	R381	B-4	S301	B-4
C316	C-4	D331	F-8	R306	F-6	R343	B-4	R384	B-2	S480	C-5
C317	C-4	D332	F-8	R307	F-4	R345	B-6	R386	E-6	S481	C-4
C318	C-3	D334	F-8	R308	F-5	R346	B-5	R387	G-4	S482	B-5
C319	C-4	D335	G-8	R309	B-6	R347	F-9	R389	C-3	S483	G-6
C320	C-4	D480	F-9	R310	A-2	R348	F-9	R390	C-3	S484	C-7
C321	C-3	D481	E-3	R311	B-4	R350	C-5	R392	B-2	S485	A-4
C323	F-2			R312	F-4	R351	E-5	R393	E-2	S486	A-2
C325	A-2	FL300	C-5	R313	C-4	R352	B-5	R394	A-2	S487	F-6
C326	B-1			R314	B-4	R353	E-5	R395	A-3	S488	F-6
C327	A-2	IC301	F-4	R315	F-3	R354	E-5	R396	F-5	S489	B-2
C328	F-2	IC302	F-2	R316	F-3	R355	E-5	R397	G-2		
C336	G-1	IC303	E-4	R317	F-4	R356	E-5	R398	F-2	X302	F-3
C337	C-6			R318	A-3	R357	F-2	R399	B-3	XTL301	F-3
		J480	D-1	R319	B-4	R358	E-5	R480	F-9		
CN480	G-3	J481	F-1	R320	F-4	R359	B-7	R482	D-4		
CN481	F-2			R321	F-4	R360	A-2	R483	D-4		
CN482	E-9	L300	B-4	R322	B-4	R361	A-2	R484	D-4		
CN483	E-6	L301	F-1	R323	F-5	R362	G-4	R485	D-4		

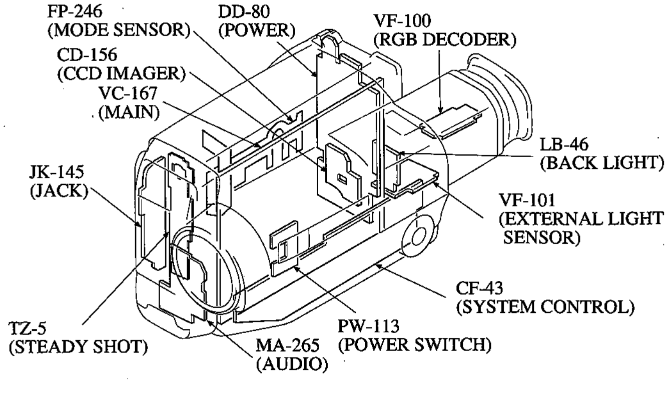
CF-43 B

A
B
C
D
CF-43
J480
LANC
E
F
J481
HEADPH
G
16

TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL

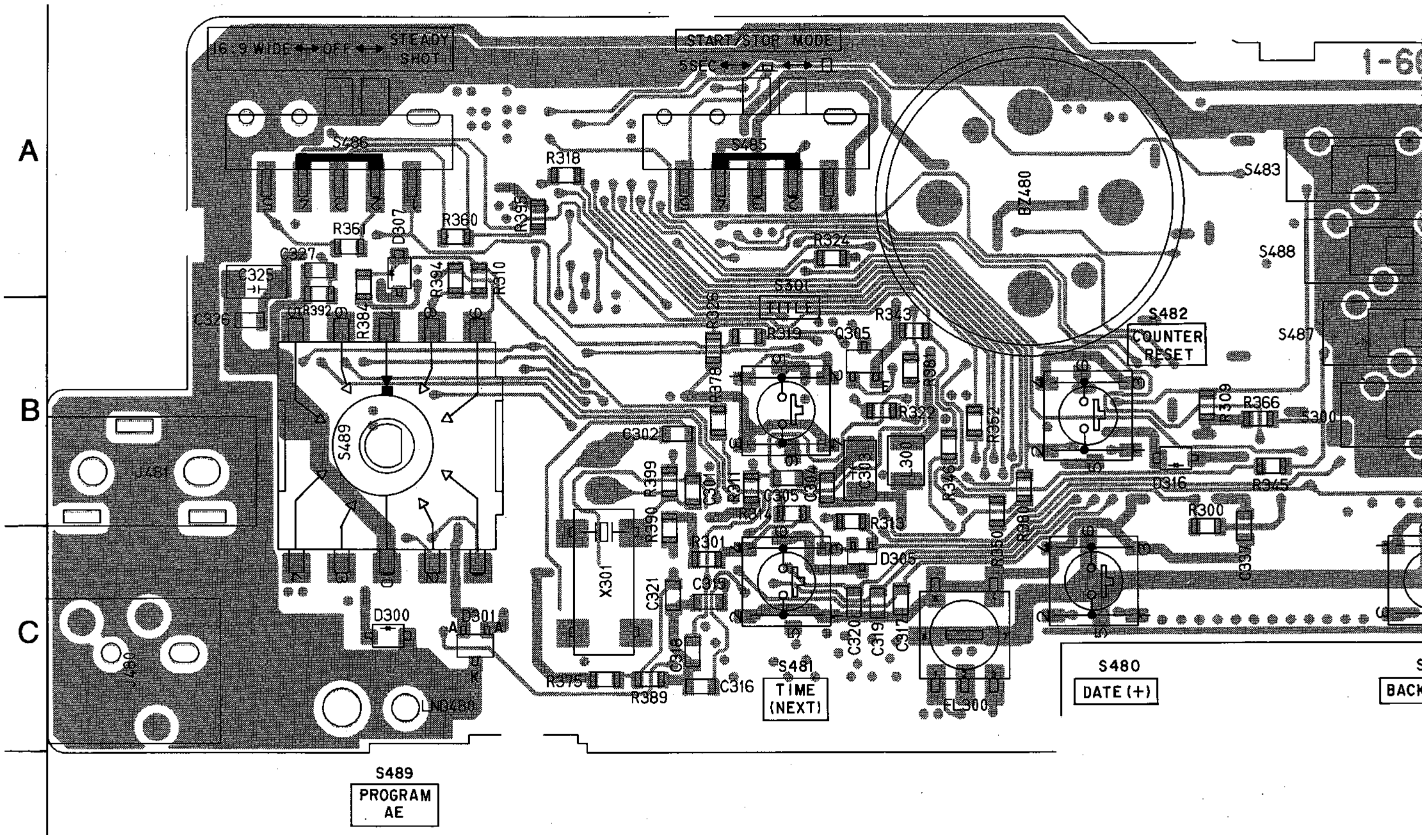

FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
JK-145
(JACK)
LB-44
(BACK LIGHT)
<TR614>
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
PW-113
(POWER SWITCH)
MA-265
(AUDIO)

There are few cases that the part printed on this diagram isn't mounted in this model.

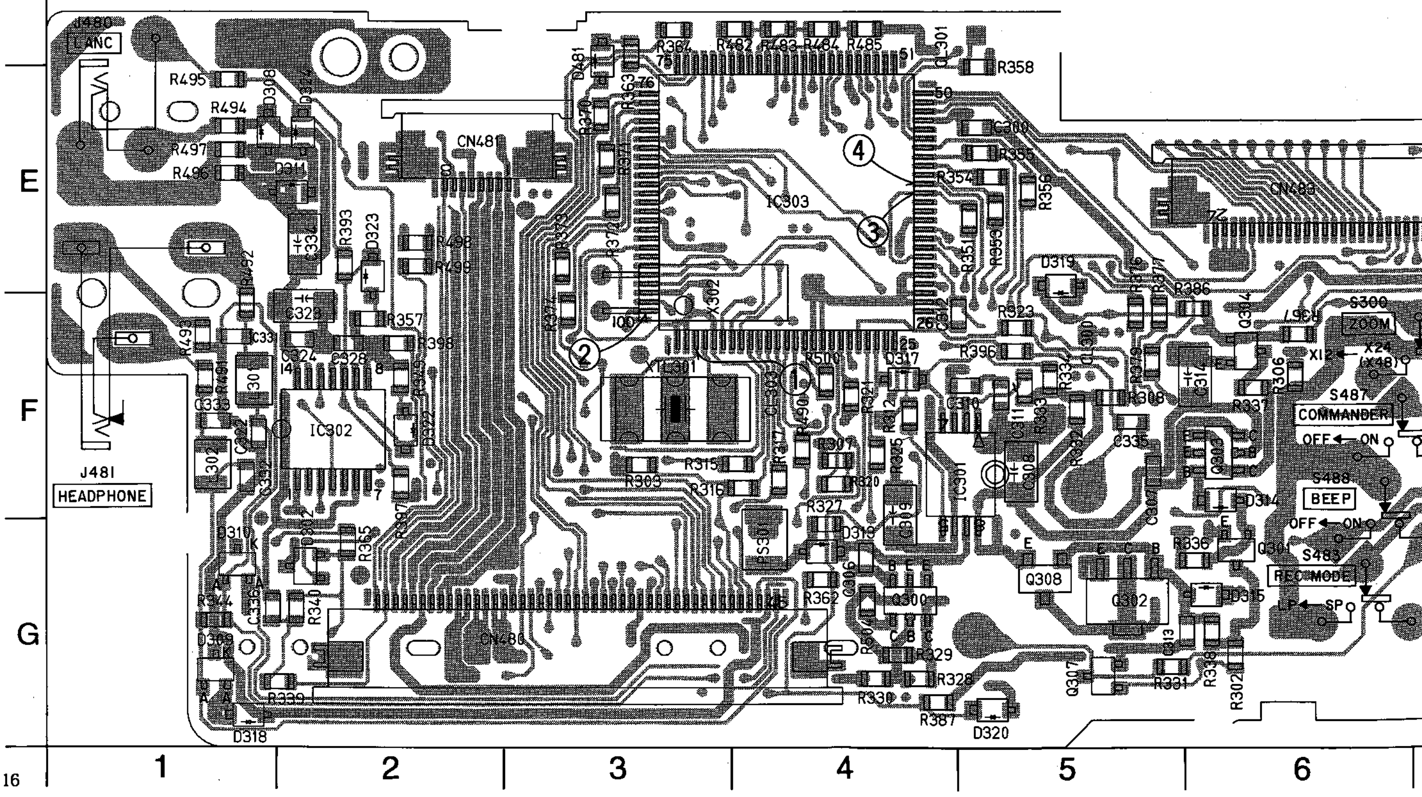
CF-43 BOARD (SIDE A)

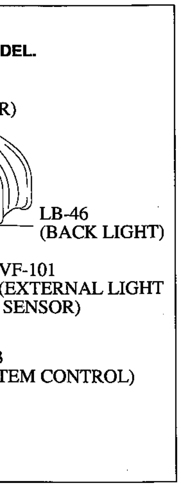

A
B
C
16:9 WIDE ◄► OFF ◄► STEADY SHOT
START/STOP MODE
5SEC
S486
S485
R318
R361
D307
R360
C327
C325
C326
R392
R384
R394
R310
R306
BZ480
S483
S488
S487
R324
S301
TITLE
R343
S482
COUNTER RESET
R312
Q305
R378
R322
R352
R309
R366
S300
J481
S489
C302
R399
C301
R311
C305
C303
L300
R346
D316
R345
R300
R390
R301
R313
D305
R350
X301
C321
C319
C320
C317
D300
D301
R375
R389
C318
C316
S481
TIME (NEXT)
FL300
S480
DATE (+)
BACK
J480
LND480
1-6

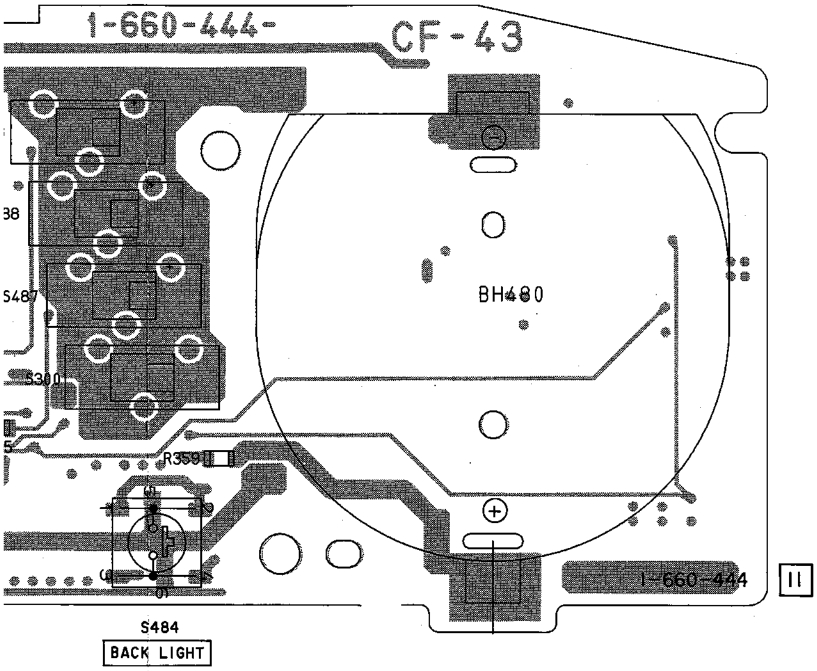
S489
PROGRAM AE

D

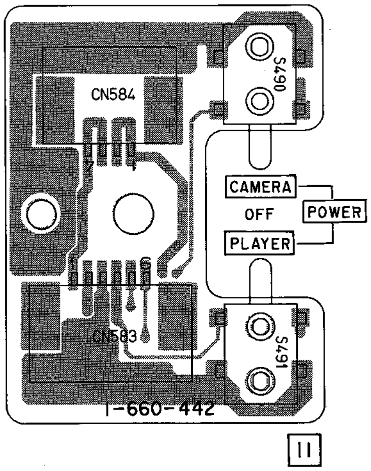
CF-43 BOARD (SIDE B)


J480
LANC
R495
R494
R497
R496
D308
D311
C334
R393
D323
R498
R499
R492
R493
C323
R357
R398
C324
C328
C333
C330
R491
C332
C302
R304
IC302
D322
R345
R307
D310
R365
R344
C336
R340
D309
D318
R339
CN481
CN480
D481
R364
R482
R483
R484
R485
R363
R370
R371
R372
R373
IC303
X302
X1C301
R315
R303
R316
R500
R501
R358
C300
R355
R354
R356
R353
R351
D319
R316
R317
R386
R323
R396
Q314
R334
Q306
D317
R321
R312
R308
R385
R327
R320
D313
C309
PS301
R362
Q300
R329
R328
R330
R387
D320
IC301
C310
C311
C308
R383
C335
R306
R337
Q308
Q302
R336
Q301
D314
D315
Q307
Q313
R331
R338
R302
CN483
S300
ZOOM
X12
X24 (X48)
S487
COMMANDER
OFF ◄ ON
S488
BEEP
OFF ◄ ON
S483
REC MODE
LP ◄ SP
J481
HEADPHONE
1
2
3
4
E
F
G
1
2
3
4
5
6
16

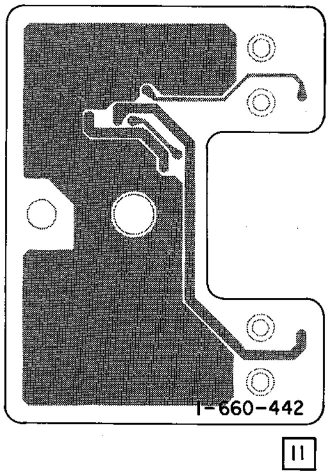

DEL.
R)
LB-46
(BACK LIGHT)
VF-101
(EXTERNAL LIGHT
SENSOR)
3
TEM CONTROL)

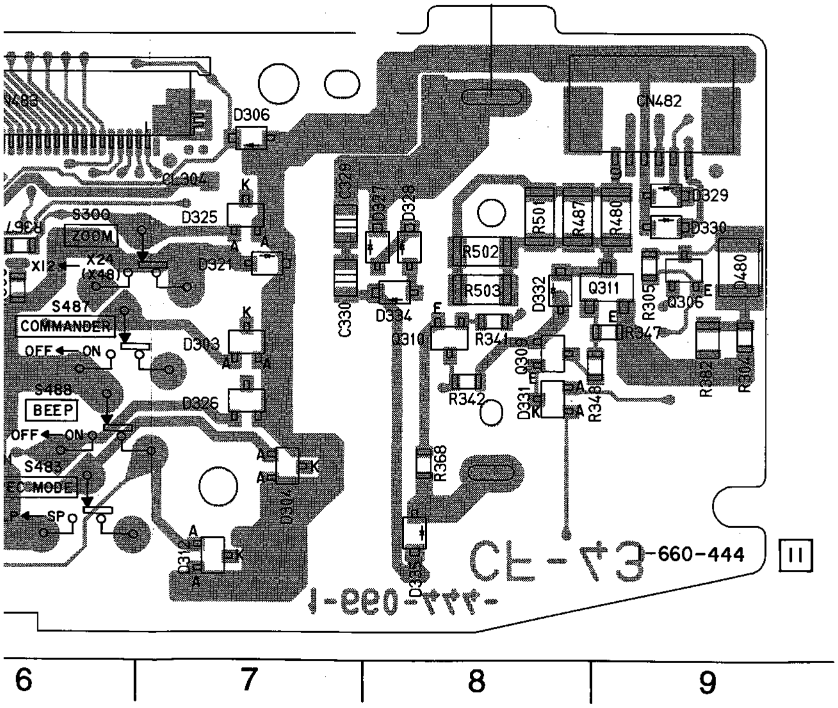

1-660-444-
CF-43
BH480
S487
S300
R359
S484
BACK LIGHT
1-660-444

PW-113 BOARD (SIDE A)


CN584
S490
CAMERA
OFF
POWER
PLAYER
CN583
S491
1-660-442

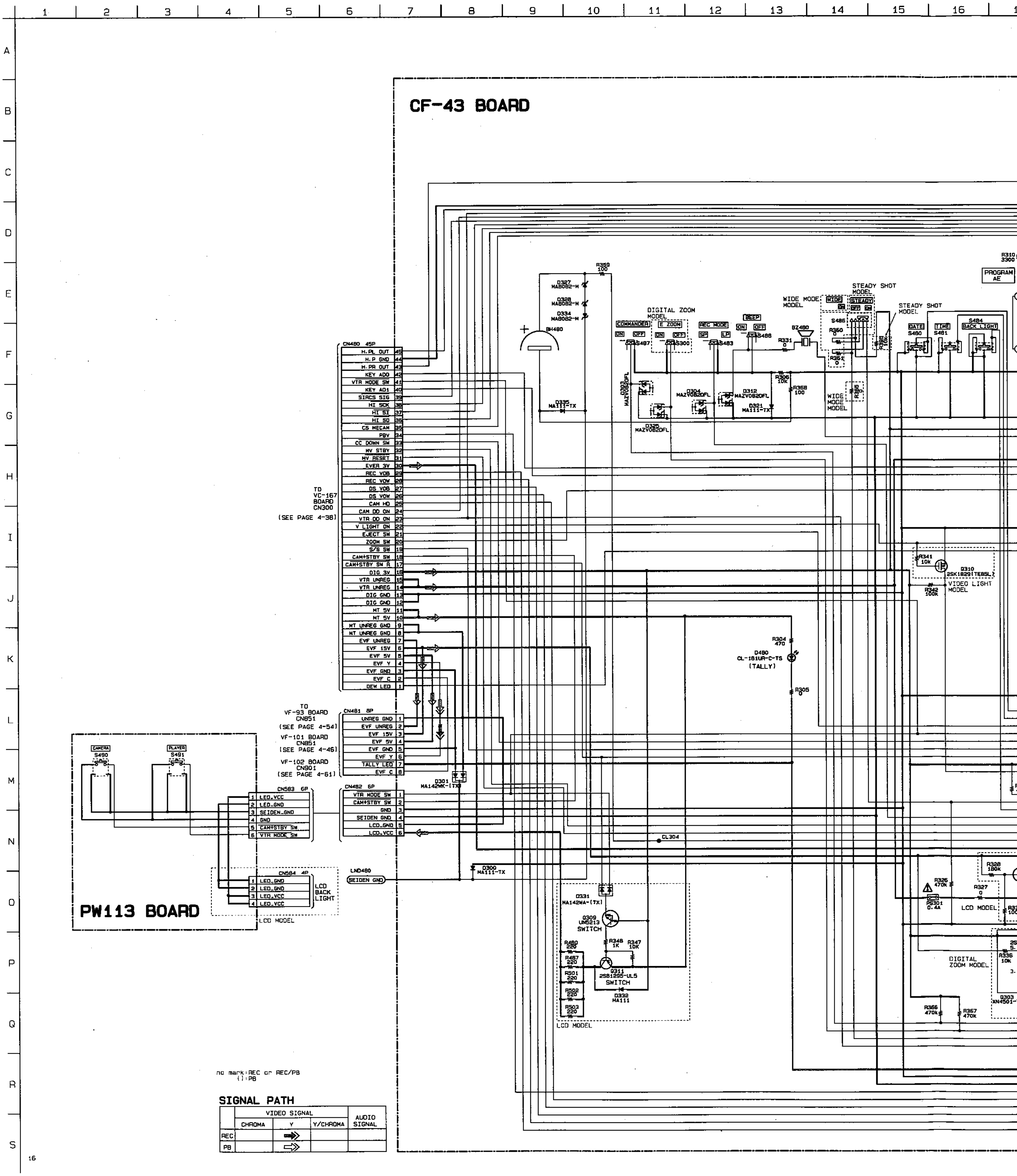
PW-113 BOARD (SIDE B)




CN482
D306
CL304
S300
ZOOM
X12
X24
(X48)
D325
D321
S487
COMMANDER
OFF
ON
D303
S488
BEEP
OFF
ON
D326
S485
REC MODE
SP
D314
D313
C329
C330
D327
D328
D334
Q310
R502
R503
R501
R487
R480
D329
D330
D332
Q311
R305
Q306
D480
R341
R347
Q309
R342
D331
R348
R368
R382
D335
CF-43
1-660-444
6
7
8
9

CF-43 (SYSTEM CONTROL), PW-113 (POWER SWITCH) SCHEMATIC DIAGRAMS

— Ref. No. CF-43 Board, PW-113 Board; 2,000 Series —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A
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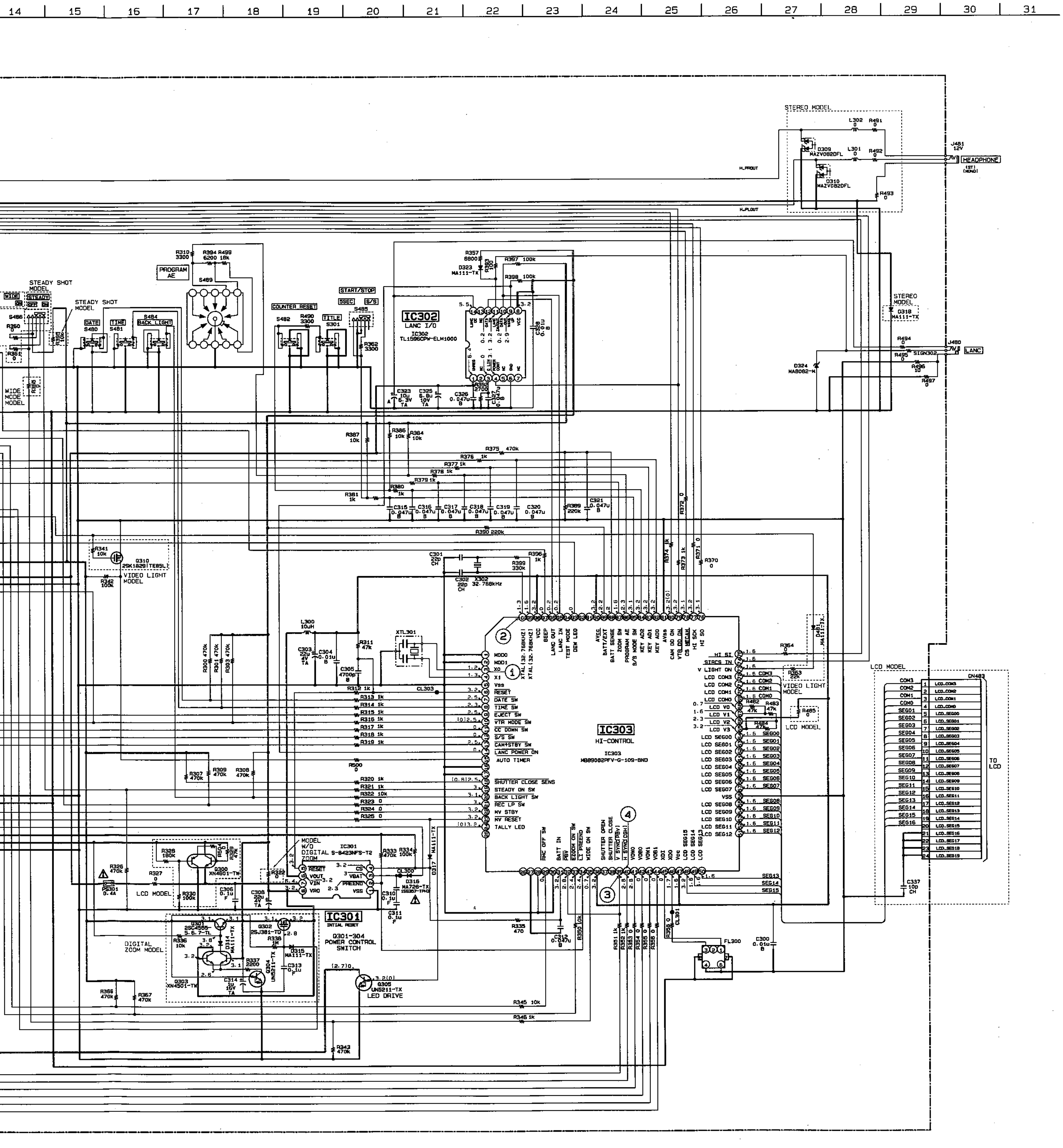
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
CF-43 BOARD
R359
100
D327
MA8082-M
D328
MA8082-M
D334
MA8082-M
BH480
D335
MA111-TX
DIGITAL ZOOM
MODEL
COMMANDER
ON
OFF
S487
E ZOOM
ON
OFF
S300
REC MODE
SP
LP
S483
BEEP
ON
OFF
S488
BZ480
R331
0
WIDE MODE
MODEL
WIDE
ON
STEADY SHOT
MODEL
STEADY
OFF
ON
S486
R350
0
R351
0
R398
10k
STEADY SHOT
MODEL
DATE
S480
TIME
S481
S484
BACK LIGHT
R310
3300
PROGRAM
AE
D303
MAZV082DFL
D304
MAZV082DFL
D312
MAZV082DFL
D321
MA111-TX
D325
MAZV082DFL
R306
10k
R358
100
WIDE
MODE
MODEL
R385
0
CN480 45P
H.PL OUT 45
H.P GND 44
H.PR OUT 43
KEY AD0 42
VTR MODE SW 41
KEY AD1 40
SIRCS SIG 39
HI SCK 38
HI SI 37
HI SO 36
CS MECAM 35
PBV 34
CC DOWN SW 33
MV STBY 32
MV RESET 31
EVER 3V 30
REC VOB 29
REC VOW 28
DS VOB 27
DS VOW 26
CAM HD 25
CAM DD ON 24
VTR DD ON 23
V LIGHT ON 22
EJECT SW 21
ZOOM SW 20
S/S SW 19
CAM+STBY SW 18
CAM+STBY SW R 17
DIG 3V 16
VTR UNREG 15
VTR UNREG 14
DIG GND 13
DIG GND 12
MT 5V 11
MT 5V 10
MT UNREG GND 9
MT UNREG GND 8
EVF UNREG 7
EVF 15V 6
EVF 5V 5
EVF Y 4
EVF GND 3
EVF C 2
DEW LED 1
TO
VC-167
BOARD
CN300
(SEE PAGE 4-38)
R341
10k
Q310
2SK1829(TE85L)
R342
100k
VIDEO LIGHT
MODEL
R304
470
D480
CL-181UR-C-TS
(TALLY)
R305
0
TO
VF-93 BOARD
CN851
(SEE PAGE 4-54)
VF-101 BOARD
CN851
(SEE PAGE 4-46)
VF-102 BOARD
CN901
(SEE PAGE 4-61)
CN481 8P
UNREG GND 1
EVF UNREG 2
EVF 15V 3
EVF 5V 4
EVF GND 5
EVF Y 6
TALLY LED 7
EVF C 8
D301
MA142WK-(TX)
CN482 6P
VTR MODE SW 1
CAM+STBY SW 2
GND 3
SEIDEN GND 4
LCD_GND 5
LCD_VCC 6
CL304
LND480
SEIDEN GND
D300
MA111-TX
D331
MA142WA-(TX)
Q309
UN5213
SWITCH
R480
220
R487
220
R501
220
R502
220
R503
220
R348
1K
R347
10K
Q311
2SB1295-UL5
SWITCH
D332
MA111
LCD MODEL
R328
180K
R326
470k
R327
0
PS301
0.4A
LCD MODEL
R336
10k
DIGITAL
ZOOM MODEL
Q303
XN4501
R366
470k
R367
470k
CAMERA
S490
PLAYER
S491
CN583 6P
1 LED_VCC
2 LED_GND
3 SEIDEN_GND
4 GND
5 CAM+STBY SW
6 VTR MODE SW
CN584 4P
1 LED_GND
2 LED_GND
3 LED_VCC
4 LED_VCC
LCD
BACK
LIGHT
LCD MODEL
PW113 BOARD
16

no mark : REC or REC/PB
( ) : PB

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC		➡		
PB		⇨		



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23
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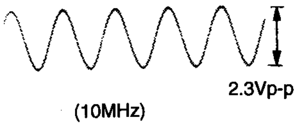
25
26
27
28
29
30
31
STEREO MODEL
L302 0
R491 0
D309 MAZV082DFL
L301 0
R492 0
D310 MAZV082DFL
R493 0
J481 12V
HEADPHONE
(ST) (MONO)
H_PROUT
H_PLOUT
STEREO MODEL
D318 MA111-TX
J480
LANC
R494 0
R495 0
SIGN302
D324 MA8082-M
R496 10
R497 0
STEADY SHOT MODEL
WIDE
STEADY
STEADY SHOT MODEL
S486
R360
R361 0
WIDE MODE MODEL
DATE S480
TIME S481
S484 BACK LIGHT
PROGRAM AE
S489
R310 3300
R394 6200
R499 18k
COUNTER RESET
S482
R490 3300
TITLE S301
START/STOP
5SEC
S/S
S485
R362 3300
IC302
LANC I/O
IC302 TL1596CPW-ELM1000
R357 6800
D323 MA111-TX
R397 100k
R398 100k
C323 10u 6.3V TA
C325 6.8u 10V TA
C326 0.047u B
R392 2700
C327 0.047u B
C328 0.01u B
R387 10k
R386 10k
R384 10k
R375 470k
R376 1k
R377 1k
R378 1k
R379 1k
R380 1k
R381 1k
C315 0.047u B
C316 0.047u B
C317 0.047u B
C318 0.047u B
C319 0.047u B
C320 0.047u B
R389 220k
C321 0.047u B
R390 220k
R372 0
R374 1k
R373 1k
R371 0
R370 0
R341 10k
Q310 2SK1829(TE85L)
VIDEO LIGHT MODEL
R342 100k
C301 22p CH
C302 22p CH
X302 32.768kHz
R399 330k
R396 1k
L300 10uH
C303 22u 4V TA
C304 0.01u B
R311 47k
XTL301
C305 4700p B
R300 470k
R301 470k
R303 470k
R312 1k
CL303
R313 1k
R314 1k
R315 1k
R316 1k
R317 1k
R318 1k
R319 1k
R500 0
R307 470k
R309 470k
R308 470k
R320 1k
R321 1k
R322 10k
R323 0
R324 0
R325 0
IC303
HI-CONTROL
IC303 MB89082PFV-G-109-BND
MOD0
MOD1
X0
X1
Vss
RESET
DATE SW
TIME SW
EJECT SW
VTR MODE SW
CC DOWN SW
S/S SW
CAM+STBY SW
LANC POWER ON
AUTO TIMER
SHUTTER CLOSE SENS
STEADY ON SW
BACK LIGHT SW
REC LP SW
MV STBY
MV RESET
TALLY LED
XTAL(32.768KHZ)
XTAL(32.768KHZ)
VCC
BEEP
LANC OUT
LANC IN
TEST MODE
DEW LED
AVcc
BATT/EXT
BATT SENSE
ZOOM SW
PROGRAM AE
S/S MODE SW
KEY AD2
KEY AD1
KEY AD0
AVss
CAM DD ON
VTR DD ON
CS MECHA
HI SCK
HI SO
HI SI
SIRCS IN
V LIGHT ON
LCD COM3
LCD COM2
LCD COM1
LCD COM0
LCD V0
LCD V1
LCD V2
LCD V3
LCD SEG00
LCD SEG01
LCD SEG02
LCD SEG03
LCD SEG04
LCD SEG05
LCD SEG06
LCD SEG07
VSS
LCD SEG08
LCD SEG09
LCD SEG10
LCD SEG11
LCD SEG12
RMC OFF SW
BATT IN
PBV
EDOOR ON SW
LI PREEND
WIDE ON SW
SHUTTER OPEN
SHUTTER CLOSE
V SYNC(PBV)
H SYNC(SWH)
VDD0
VDD0
VDH1
VDS1
XDI
XDO
Vcc
LCD SEG15
LCD SEG14
LCD SEG13
SEG13
SEG14
SEG15
R364 0
D481 MA111-TX
R363 22k
VIDEO LIGHT MODEL
R482 47k
R483 47k
R484 47k
R485
LCD MODEL
COM3
COM2
COM1
COM0
SEG00
SEG01
SEG02
SEG03
SEG04
SEG05
SEG06
SEG07
SEG08
SEG09
SEG10
SEG11
SEG12
LCD MODEL
CN483
LCD_COM3
LCD_COM2
LCD_COM1
LCD_COM0
LCD_SEG00
LCD_SEG01
LCD_SEG02
LCD_SEG03
LCD_SEG04
LCD_SEG05
LCD_SEG06
LCD_SEG07
LCD_SEG08
LCD_SEG09
LCD_SEG10
LCD_SEG11
LCD_SEG12
LCD_SEG13
LCD_SEG14
LCD_SEG15
LCD_SEG16
LCD_SEG17
LCD_SEG18
LCD_SEG19
TO LCD
SEG01
SEG02
SEG03
SEG04
SEG05
SEG06
SEG07
SEG08
SEG09
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
C337 10p CH
R326 470k
PS301 0.4A
R327 0
LCD MODEL
R328 180k
R329 47k
Q300 XN4601-TW
R330 100k
C306 0.1u F
C308 22u 4V TA
R322
MODEL W/O DIGITAL ZOOM
IC301 S-8423NFS-T2
RESET
VOUT
VIN
VRO
CS
VBAT
PREEND
VSS
R333 470k
R334 100k
CL300
D316 MA728-TX
D317 MA111-TX
C310 0.1u F
C311 0.1u F
IC301
INITIAL RESET
Q301-304 POWER CONTROL SWITCH
DIGITAL ZOOM MODEL
Q301 2SC4555-5.6.7-TL
R336 10k
D314 MA111-TX
Q302 2SJ381-TD
R338 1M
D315 MA111-TX
R337 2200
C313 0.1u
Q304 UN5211-TX
Q303 XN4501-TW
C314 1u 16V TA
Q305 UN5211-TX
LED DRIVE
R366 470k
R367 470k
R335 470
C312 0.047u B
R350 10k
R351 1k
R352 1k
R353 0
R354 0
R355 0
R356 0
R358 0
CL301
FL300
C300 0.01u B
R345 10k
R346 1k
R343 470k

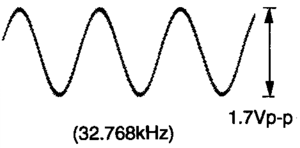
30
31
HEADPHONE
(ST)
(MONO)
LANC
CN483
TO
LCD

CF-43 BOARD

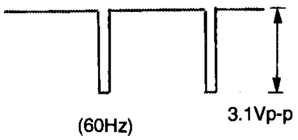
① IC303 ③ REC/PB



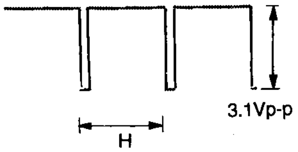
② IC303 ⑩⓪ REC/PB



③ IC303 ㊴ REC/PB



④ IC303 ㊵ REC/PB

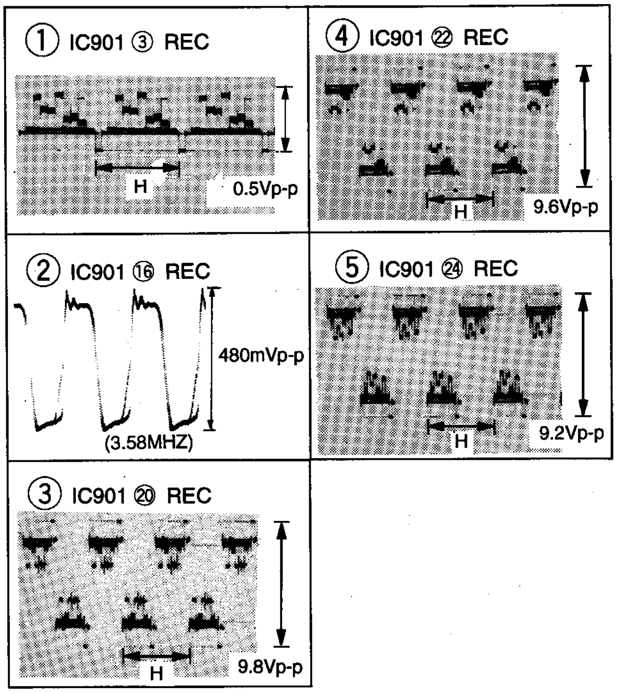


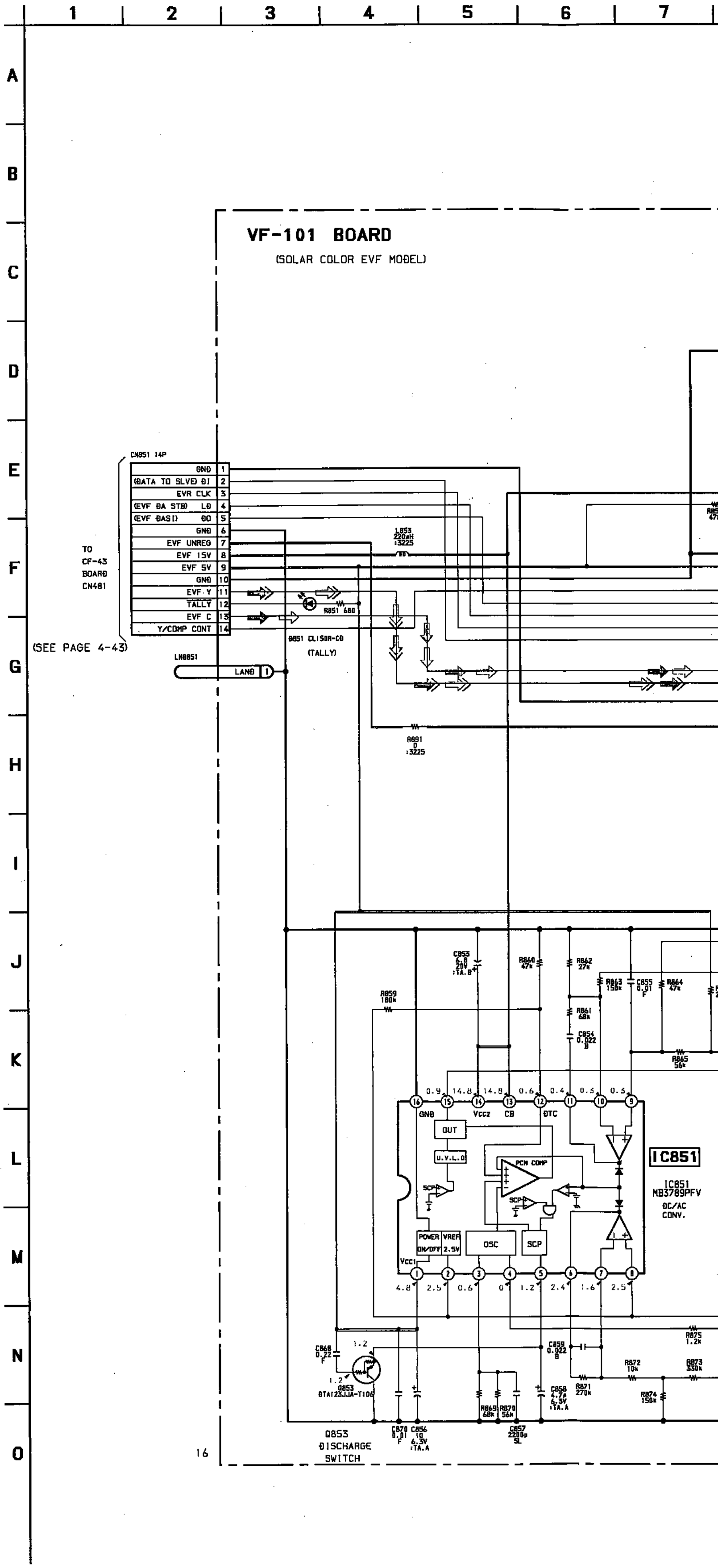
VF-101 (EXTERNAL LIGHT SENSOR), VF-100 (RGB DECODER), LB-46 (BACK LIGHT) SCHEMATIC DIAGRAMS

— Ref. No. VF-101 Board, VF-100 Board, LB-46 Board; 4,000 Series —

SOLAR C

VF-100 BOARD

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A
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C
D
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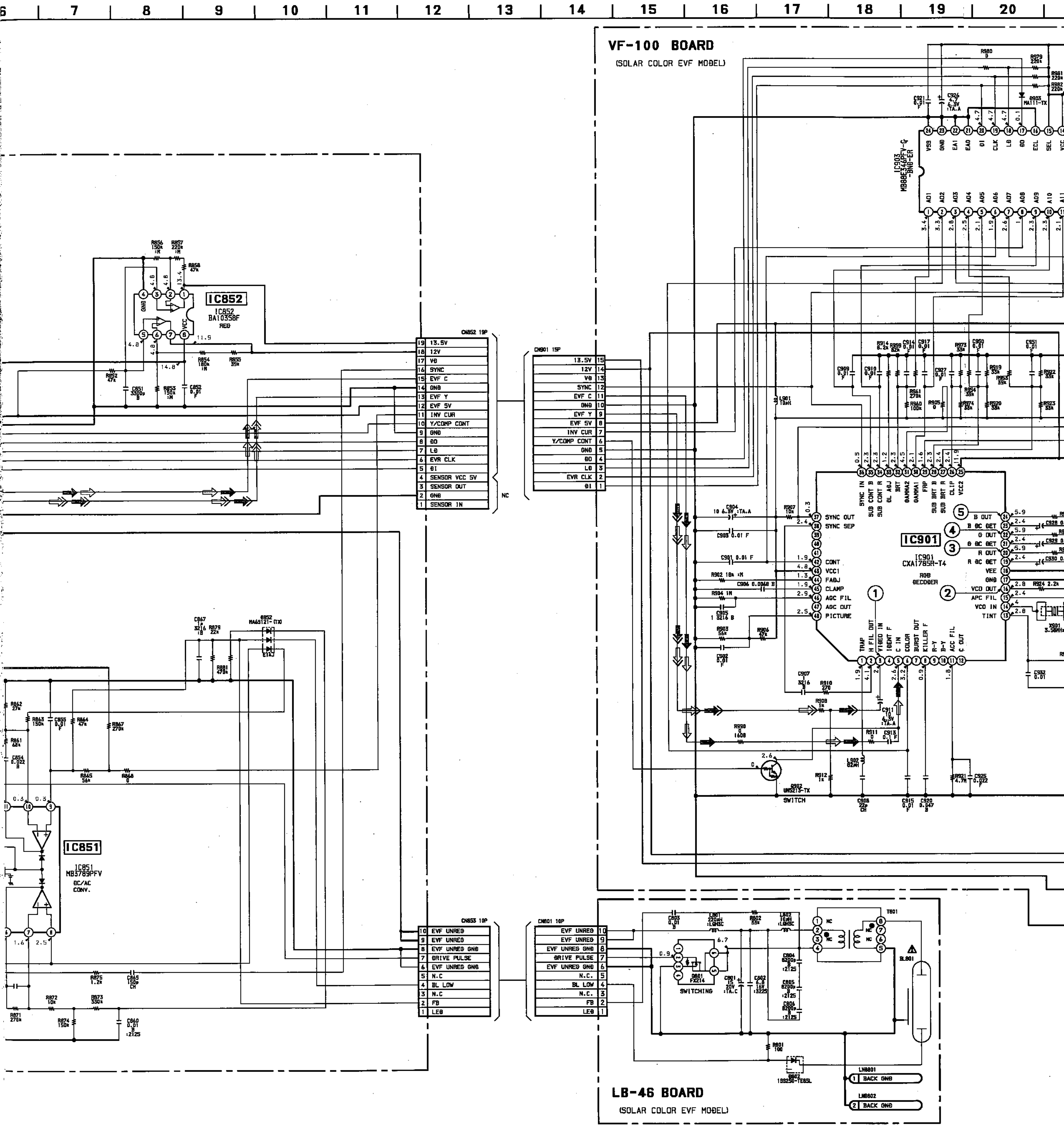
G
H
I
J
K
L
M
N
O
VF-101 BOARD
(SOLAR COLOR EVF MODEL)
CN851 14P
GND 1
(DATA TO SLVE) DI 2
EVR CLK 3
(EVF DA STB) LD 4
(EVF DAS I) DO 5
GND 6
EVF UNREG 7
EVF 15V 8
EVF 5V 9
GND 10
EVF Y 11
TALLY 12
EVF C 13
Y/COMP CONT 14
TO CF-43 BOARD CN481
(SEE PAGE 4-43)
LN8851
LAND 1
L853 220μH :3225
R851 680
D851 CL150R-CD (TALLY)
R891 0 :3225
C853 6.8 20V :TA.B
R860 47k
R862 27k
R859 180k
R861 68k
R863 150k
C855 0.01 F
R864 47k
C854 0.022 B
R865 56k
GND
VCC2
CB
DTC
OUT
U.V.L.O
PCM COMP
SCP
POWER ON/OFF
VREF 2.5V
OSC
SCP
VCC1
IC851
IC851 MB3789PFV
DC/AC CONV.
0.9
14.8
14.8
0.6
0.4
0.3
0.5
4.8
2.5
0.6
0
1.2
2.4
1.6
2.5
C868 0.22 F
1.2
1.2
Q853 DTA123JJA-T106
Q853 DISCHARGE SWITCH
C870 0.01 F
C856 10 6.3V :TA.A
R869 68k
R870 56k
C857 2200p SL
C859 0.022 B
C858 4.7μ 6.3V :TA.A
R871 270k
R872 10k
R874 150k
R875 1.2k
R873 330k
16

SOLAR COLOR EVF MODEL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7
8
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12
13
14
15
16
17
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19
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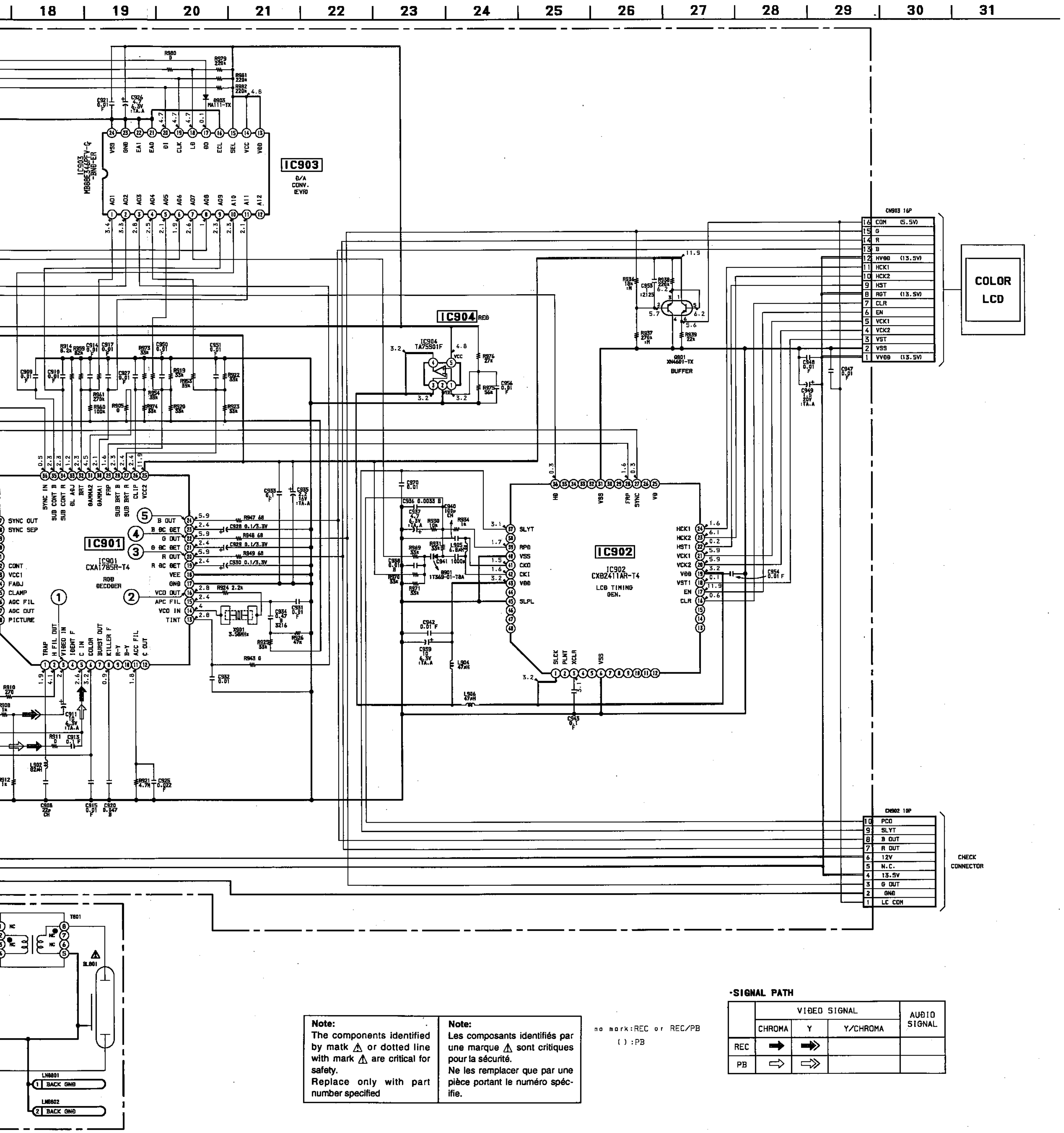
VF-100 BOARD
(SOLAR COLOR EVF MODEL)
IC903
MB88E346PFV-G-BND-ER
IC852
IC852
BA10358F
REG
CN852 19P
19 13.5V
18 12V
17 VG
16 SYNC
15 EVF C
14 GND
13 EVF Y
12 EVF 5V
11 INV CUR
10 Y/COMP CONT
9 GND
8 SO
7 LD
6 EVR CLK
5 SI
4 SENSOR VCC 5V
3 SENSOR OUT
2 GND
1 SENSOR IN
NC
CN901 15P
13.5V 15
12V 14
VG 13
SYNC 12
EVF C 11
GND 10
EVF Y 9
EVF 5V 8
INV CUR 7
Y/COMP CONT 6
GND 5
SO 4
LD 3
EVR CLK 2
SI 1
IC901
IC901
CXA1785R-T4
RGB
DECODER
SYNC OUT
SYNC SEP
CONT
VCC1
FADJ
CLAMP
AGC FIL
AGC OUT
PICTURE
B OUT
B DC DET
G OUT
G DC DET
R OUT
R DC DET
VEE
GND
VCO OUT
APC FIL
VCO IN
TINT
X901
3.58MHz
Q902
UN5213-TX
SWITCH
IC851
IC851
MB3789PFV
DC/AC
CONV.
D852
MA6S121-(TX)
CN853 10P
10 EVF UNREG
9 EVF UNREG
8 EVF UNREG GND
7 DRIVE PULSE
6 EVF UNREG GND
5 N.C
4 BL LOW
3 N.C
2 FB
1 LED
CN801 10P
EVF UNREG 10
EVF UNREG 9
EVF UNREG GND 8
DRIVE PULSE 7
EVF UNREG GND 6
N.C. 5
BL LOW 4
N.C. 3
FB 2
LED 1
Q801
FX214
SWITCHING
T801
BL801
D802
1SS250-TE85L
LND801
1 BACK GND
LND802
2 BACK GND
LB-46 BOARD
(SOLAR COLOR EVF MODEL)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IC903
D/A CONV. (EVR)
IC903 MB88E346PFV-G-BND-ER
IC904 RED
IC904 TA75S01F
IC901
IC901 CXA1785R-T4
RGB DECODER
IC902
IC902 CXB2411AR-T4
LCD TIMING GEN.
Q901 XN4601-TX BUFFER
CN903 16P
16 COM (5.5V)
15 G
14 R
13 B
12 HVDD (13.5V)
11 HCK1
10 HCK2
9 HST
8 RGT (13.5V)
7 CLR
6 EN
5 VCK1
4 VCK2
3 VST
2 VSS
1 VVDD (13.5V)
COLOR LCD
CN902 10P
10 PCO
9 SLYT
8 B OUT
7 R OUT
6 12V
5 N.C.
4 13.5V
3 G OUT
2 GND
1 LC COM
CHECK CONNECTOR
T801
BL801
LN8801 1 BACK GND
LN8802 2 BACK GND
X901 3.58MHz

Note:	Note:
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

no mark:REC or REC/PB
( ):PB

·SIGNAL PATH

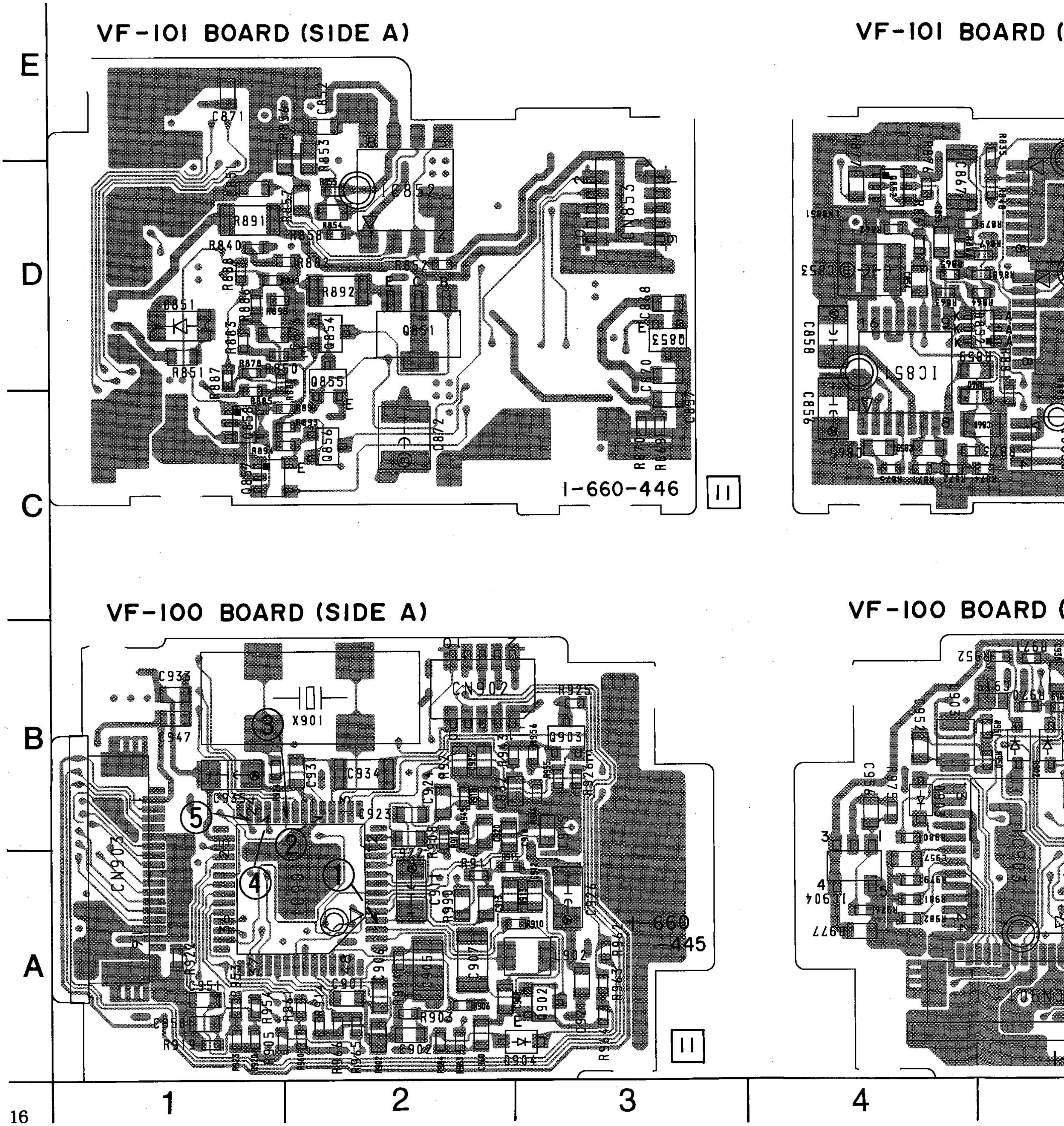
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡		
PB	⇨	⇨⇨		

SOLA

VF-101 (EXTERNAL LIGHT SENSOR), VF-100 (RGB DECODER), LB-46 (BACK LIGHT) PRINTED WIRING BOARDS

— Ref. No. VF-101 Board, VF-100 Board, LB-46 Board; 4,000 Series —

There are f

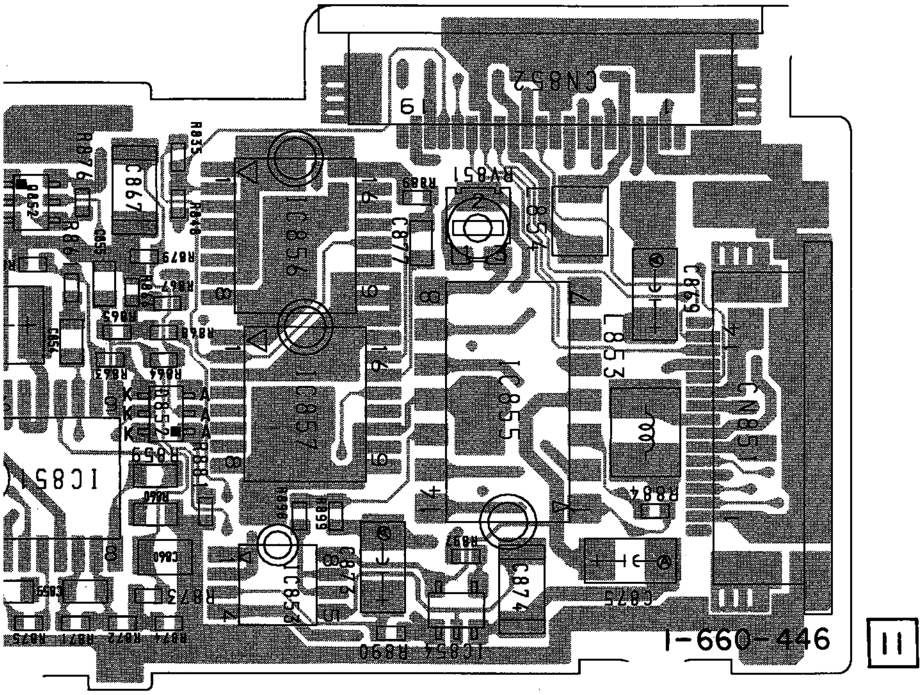


VF-101 BOARD (SIDE A)
VF-101 BOARD (
VF-100 BOARD (SIDE A)
VF-100 BOARD (
E
D
C
B
A
1
2
3
4
C871
C852
IC852
R891
R840
R892
Q851
D851
R851
Q854
Q855
Q856
Q857
C872
CN853
C868
Q853
C870
C857
R870
R869
1-660-446
11
IC853
C853
C858
C856
C867
C865
X901
CN902
CN903
C933
C947
C934
C923
C922
C935
IC901
Q903
C926
C907
C905
C904
C901
C951
C950
R919
R903
L902
D902
D904
R925
R926
R954
R905
1-660
-445
11
IC904
IC903
R977
R952
①
②
③
④
⑤

SOLAR COLOR EVF MODEL

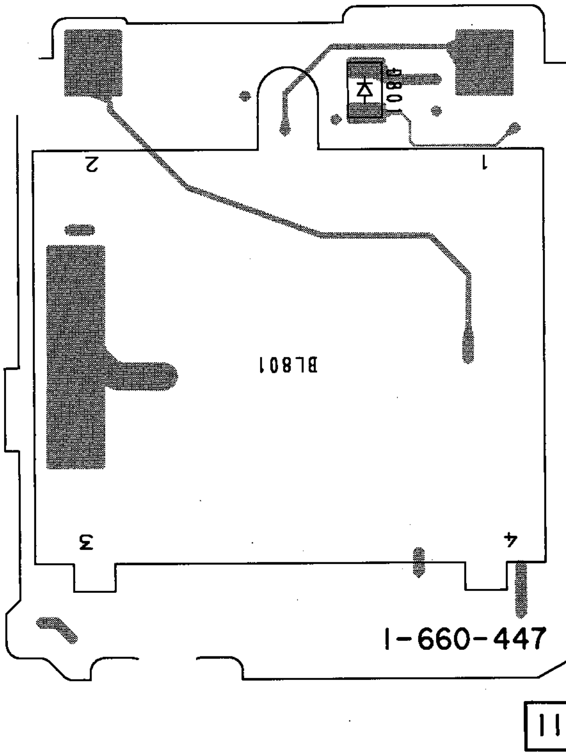
There are few cases that the part printed on this diagram isn't mounted in this model.

F-101 BOARD (SIDE B)



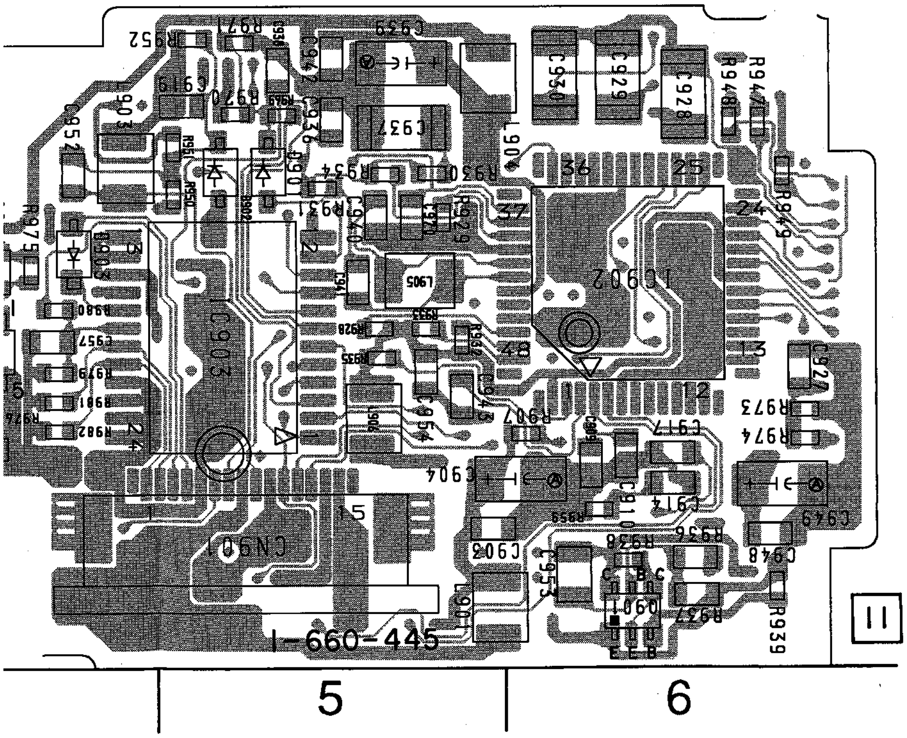
CN852
IC856
IC857
IC855
IC853
IC854
IC851
RV851
L853
CN851
C867
C869
C874
C875
R884
R890
1-660-446
11

LB-46 BOARD (SIDE A)



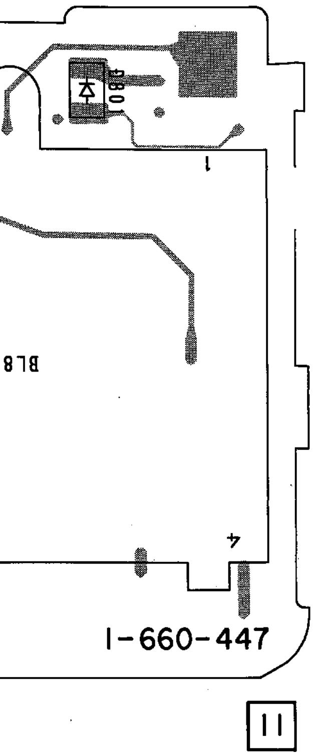
D801
BL801
1
2
3
4
1-660-447
11

-100 BOARD (SIDE B)

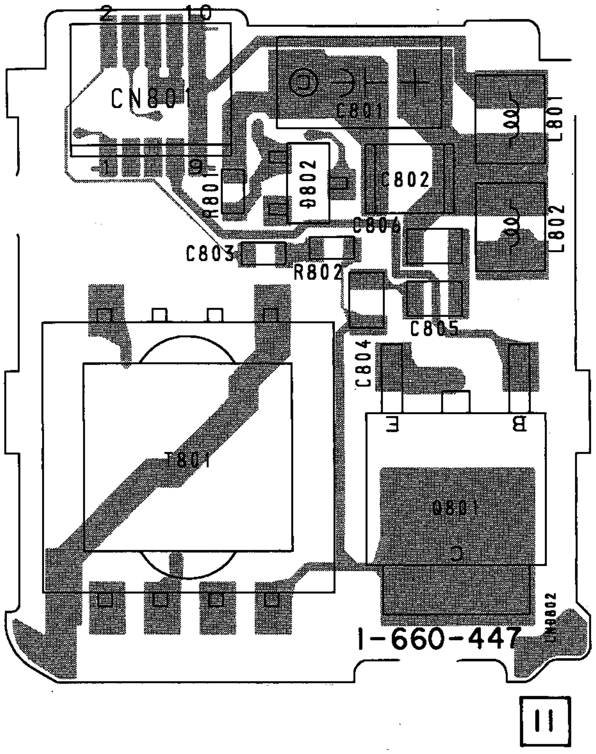


IC902
IC903
CN901
L905
C928
C929
C930
C937
C904
C903
C949
R939
R947
R948
R973
R974
36
25
37
24
48
13
12
1-660-445
11
5
6

RD (SIDE A)


D80
1
BL8
4
1-660-447
11

LB-46 BOARD (SIDE B)


2
10
CN801
1
9
C801
L801
Q802
C802
R801
C806
L802
C803
R802
C805
C804
E
B
T801
Q801
C
CN802
1-660-447
11

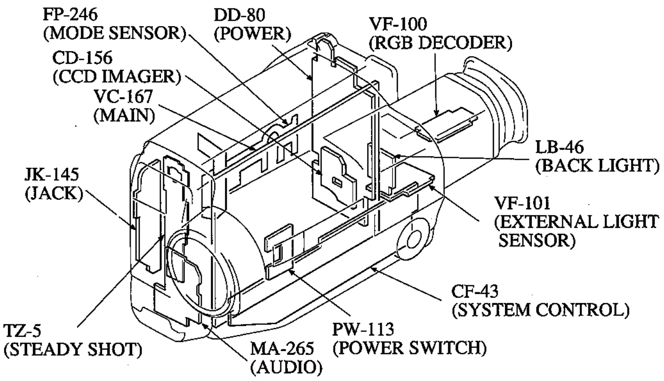
VF-100 BOARD

C901	A–2	C930	B–6	C970	B–5	R902	A–2	R936	A–6	R981	A–4
C902	A–2	C931	B–2			R903	A–2	R937	A–6	R982	A–4
C903	A–5	C932	B–2	CN901	A–5	R904	A–2	R938	A–6	R990	A–2
C904	A–5	C933	B–1	CN902	B–2	R905	A–1	R939	A–6		
C905	A–2	C934	B–2	CN903	A–1	R906	A–2	R943	B–2	X901	B–2
C906	A–2	C935	B–1			R907	A–6	R947	B–6		
C907	A–2	C936	B–5	D901	B–5	R908	B–2	R948	B–6		
C908	A–2	C937	B–5			R910	A–3	R949	B–6		
C909	A–6	C938	B–5	IC901	A–2	R911	A–2	R953	A–1		
C910	A–6	C939	B–5	IC902	B–6	R912	B–2	R954	A–1		
C911	A–2	C940	B–5	IC903	A–5	R914	A–2	R959	A–6		
C913	A–2	C941	B–5	IC904	A–4	R919	A–1	R960	A–2		
C914	A–6	C942	B–5			R920	A–1	R961	A–2		
C915	B–3	C943	A–5	L901	A–5	R921	B–2	R969	B–5		
C917	A–6	C947	B–1	L902	A–3	R922	A–1	R970	B–5		
C920	B–2	C948	A–6	L904	B–6	R923	A–1	R971	B–5		
C921	A–3	C949	A–6	L905	B–5	R924	B–1	R973	A–6		
C925	B–2	C950	A–1	L906	A–5	R925	B–3	R974	A–6		
C926	A–3	C951	A–1			R926	B–3	R975	B–4		
C927	A–6	C953	A–6	Q901	A–6	R930	B–5	R976	A–4		
C928	B–6	C954	A–5	Q902	A–3	R931	B–5	R979	A–4		
C929	B–6	C956	B–4			R934	B–5	R980	B–4		

VF-101 BOARD

C851	D–1	CN851	D–6	R852	D–2	R868	D–5
C852	E–2	CN852	E–6	R853	E–2	R869	C–3
C853	D–4	CN853	D–3	R854	D–2	R870	C–3
C854	D–4			R855	D–2	R871	C–4
C855	D–5	D851	D–1	R856	E–1	R872	C–4
C856	D–4	D852	D–5	R857	D–1	R873	C–5
C857	D–3			R858	D–1	R874	C–5
C858	D–4	IC851	D–4	R859	D–5	R875	C–4
C859	D–4	IC852	D–2	R860	D–5	R879	D–5
C860	C–5			R861	D–5	R881	D–5
C865	D–4	L853	D–6	R862	D–4	R891	D–1
C867	D–5			R863	D–5		
C868	D–3	Q853	D–3	R864	D–5		
C870	D–3			R865	D–5		
		R851	D–1	R867	D–5		

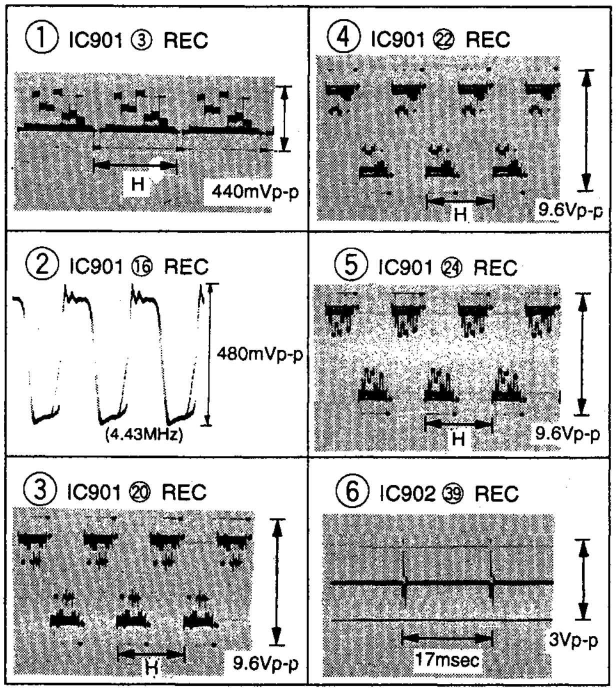
TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.

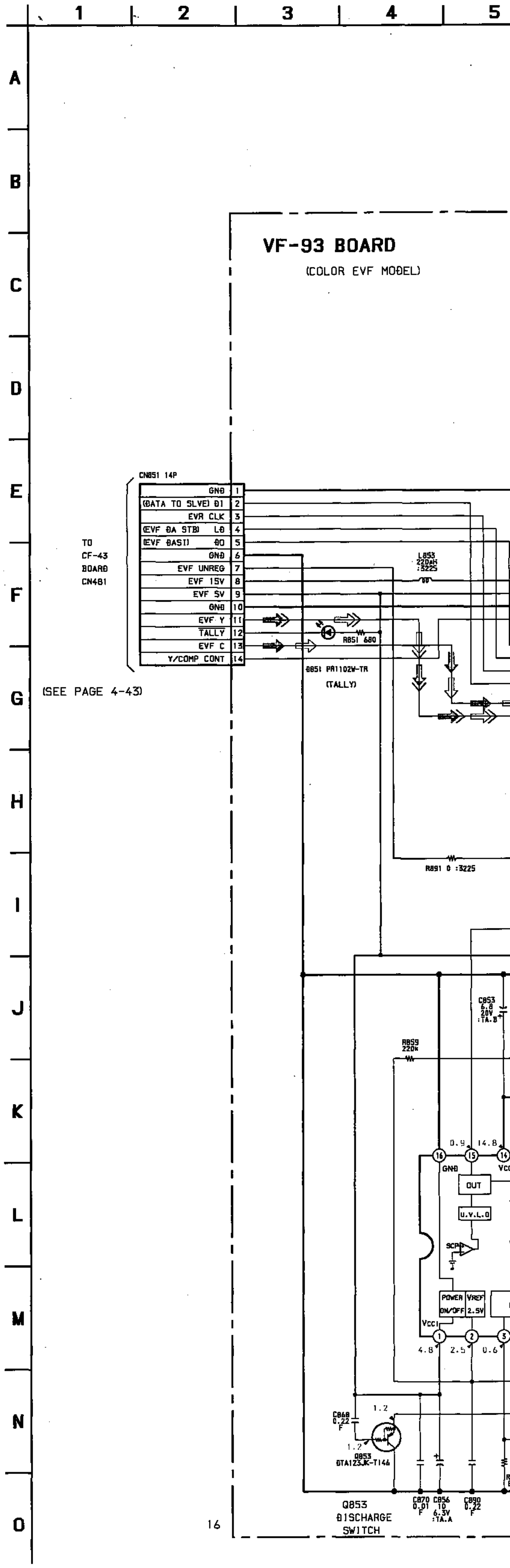

FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
TZ-5
(STEADY SHOT)
PW-113
(POWER SWITCH)
MA-265
(AUDIO)

VF-93 (EXTERNAL LIGHT SENSOR), VF-94 (RGB DECODER), LB-44 (BACK LIGHT) SCHEMATIC DIAGRAMS

— Ref. No. VF-93 Board, VF-94 Board, LB-44 Board; 7,000 Series —

VF-94 BOARD




1
2
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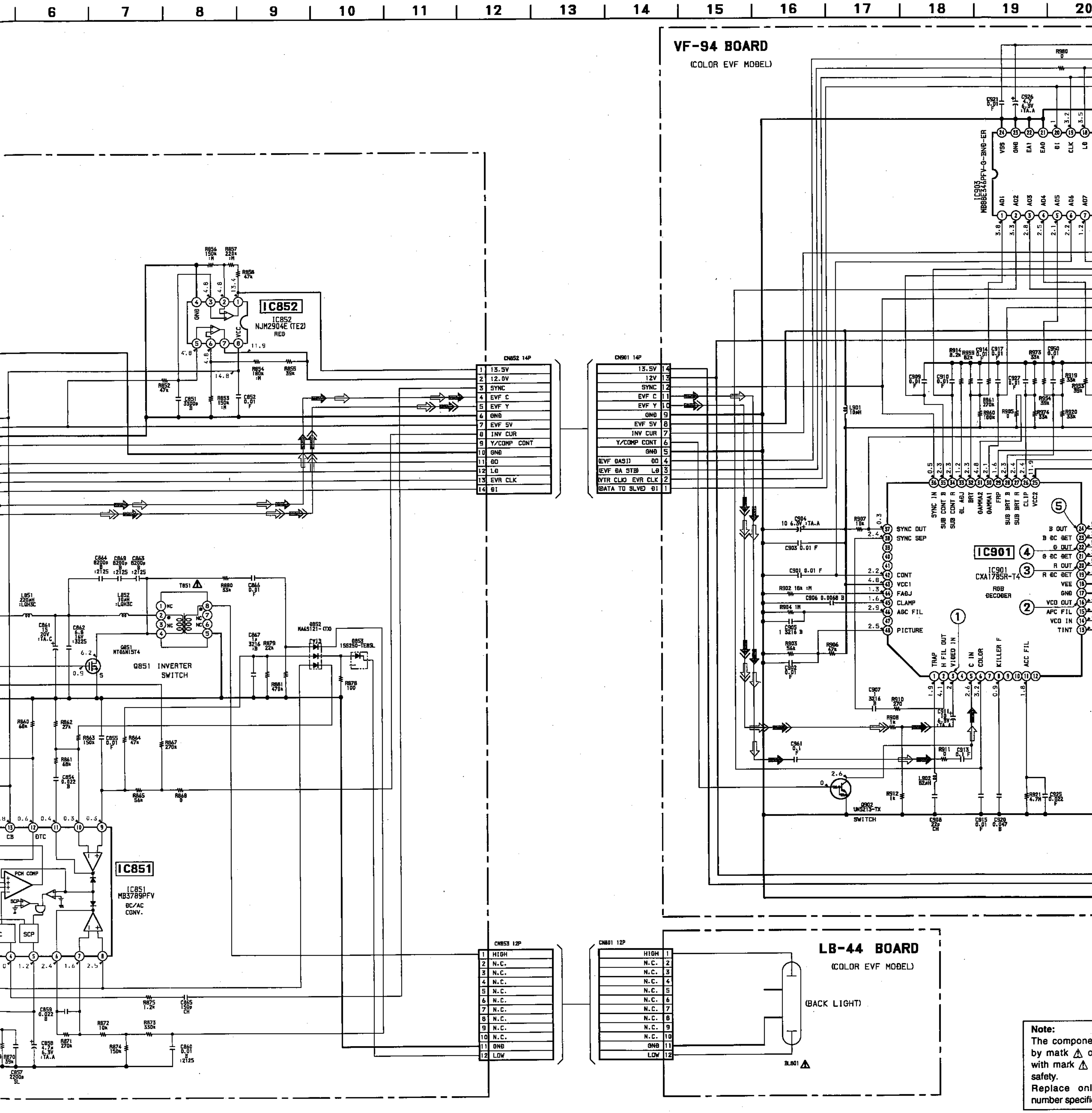
4
5
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
VF-93 BOARD
(COLOR EVF MODEL)
CN851 14P
GND 1
(DATA TO SLVE) D1 2
EVR CLK 3
(EVF DA STB) LD 4
(EVF DASI) DO 5
GND 6
EVF UNREG 7
EVF 15V 8
EVF 5V 9
GND 10
EVF Y 11
TALLY 12
EVF C 13
Y/COMP CONT 14
TO
CF-43
BOARD
CN481
(SEE PAGE 4-43)
L853
220μH
:3225
R851 680
D851 PR1102W-TR
(TALLY)
R891 0 :3225
C853
6.8
20V
:TA.B
R859
220k
0.9
14.8
16
15
14
GND
VCC
OUT
U.V.L.O
SCP
POWER ON/OFF
VREF 2.5V
VCC1
1
2
3
4.8
2.5
0.6
1.2
C868
0.22
F
Q853
DTA123JK-T146
C870 0.01 F
C856 10 6.3V :TA.A
C890 0.22 F
Q853
DISCHARGE
SWITCH
16

COLOR EVF MODEL



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15
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17
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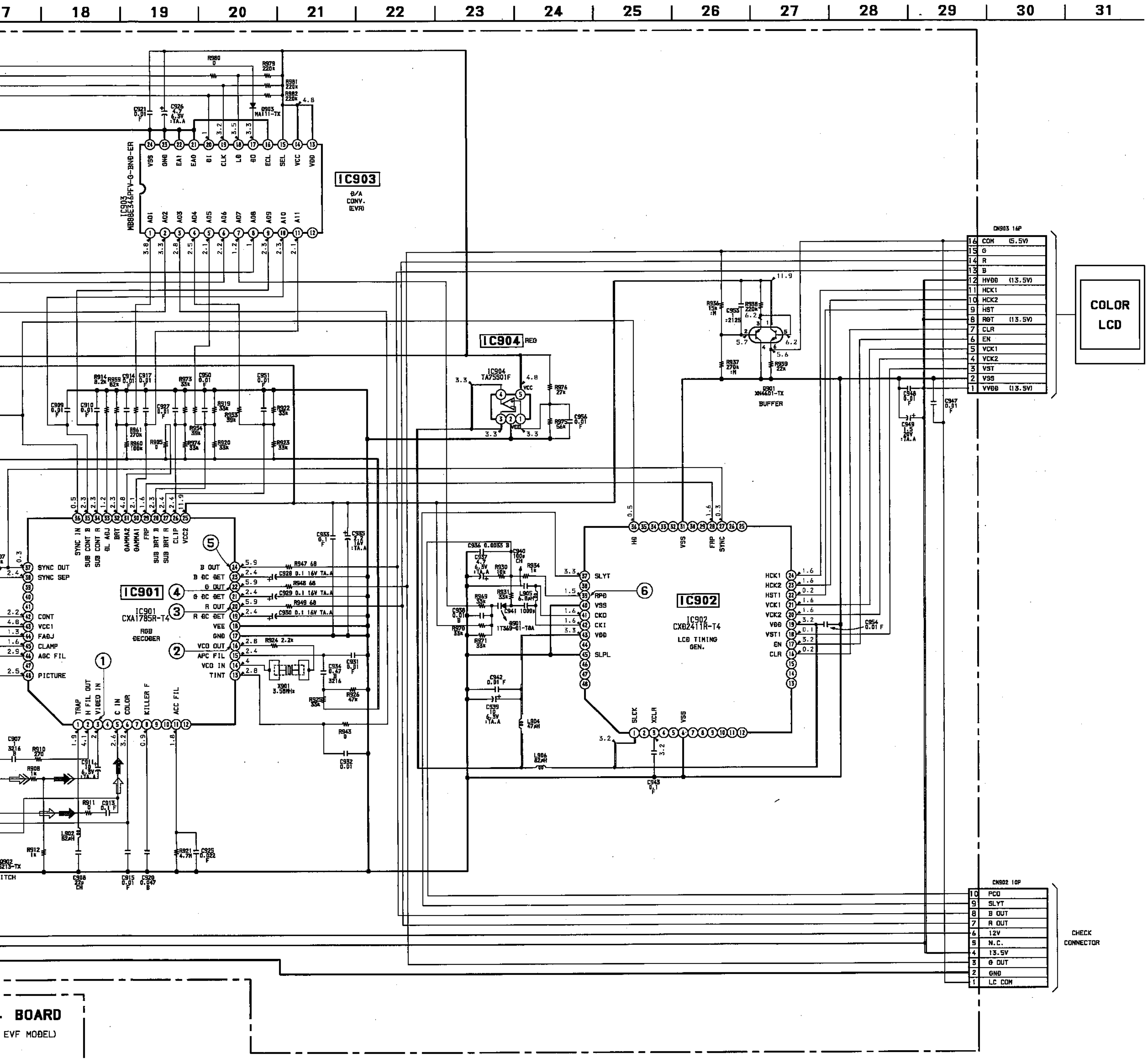
20
VF-94 BOARD
(COLOR EVF MODEL)
LB-44 BOARD
(COLOR EVF MODEL)
(BACK LIGHT)
BL801
IC852
IC852 NJM2904E (TE2) REG
IC851
IC851 MB3789PFV DC/AC CONV.
IC901
IC901 CXA1785R-T4 RGB DECODER
IC903 MB88E346PFV-G-BND-ER
Q851 INVERTER SWITCH
Q851 MT6N15T4
Q902 UN5213-TX SWITCH
T851
D852 MA6S121-(TX)
D853 1SS250-TE85L
CN852 14P
13.5V
12.0V
SYNC
EVF C
EVF Y
GND
EVF 5V
INV CUR
Y/COMP CONT
GND
DO
LD
EVR CLK
DI
CN901 14P
13.5V
12V
SYNC
EVF C
EVF Y
GND
EVF 5V
INV CUR
Y/COMP CONT
GND
(EVF DA SI) DO
(EVF DA STB) LD
(VTR CLK) EVR CLK
(DATA TO SLV) DI
CN853 12P
HIGH
N.C.
GND
LOW
CN801 12P
HIGH
N.C.
GND
LOW
SYNC OUT
SYNC SEP
CONT
VCC1
FADJ
CLAMP
AGC FIL
PICTURE
B OUT
B DC DET
G OUT
G DC DET
R OUT
R DC DET
VEE
GND
VCO OUT
APC FIL
VCO IN
TINT
TRAP
H FIL OUT
VIDEO IN
C IN
COLOR
KILLER F
ACC FIL
SYNC IN
SUB CONT B
SUB CONT R
BL ADJ
BRT
GAMMA2
GAMMA1
FRP
SUB BRT B
SUB BRT R
CLIP
VCC2
VSS
GND
EA1
EA0
DI
CLK
LD
AO1
AO2
AO3
AO4
AO5
AO6
AO7
PCM COMP
SCP
CB
DTC

Note:
The compone
by matk ⚠ o
with mark ⚠
safety.
Replace onl
number specifi



17
18
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27
28
29
30
31
IC903
MB88E346PFV-G-BND-ER
D/A CONV. (EVR)
IC904 REG
IC904 TA75S01F
IC901
CXA1785R-T4
RGB DECODER
IC902
CXD2411R-T4
LCD TIMING GEN.
Q901 XN4601-TX BUFFER
D903 MA111-TX
X901 3.58MHz
CN903 16P
COM (5.5V)
G
R
B
HVDD (13.5V)
HCK1
HCK2
HST
RGT (13.5V)
CLR
EN
VCK1
VCK2
VST
VSS
VVDD (13.5V)
COLOR LCD
CN902 10P
PCO
SLYT
B OUT
R OUT
12V
N.C.
13.5V
G OUT
GND
LC COM
CHECK CONNECTOR
SYNC OUT
SYNC SEP
CONT
VCC1
FADJ
CLAMP
AGC FIL
PICTURE
B OUT
B GC SET
G OUT
G GC SET
R OUT
R GC SET
VEE
GND
VCO OUT
APC FIL
VCO IN
TINT
TRAP
H FIL OUT
VIDEO IN
C IN
COLOR
KILLER F
ACC FIL
SYNC IN
SUB CONT B
SUB CONT R
BL ADJ
BRT
GAMMA2
GAMMA1
FRP
SUB BRT B
SUB BRT R
CLIP
VCC2
SLYT
RPD
VSS
CKO
CKI
VDD
SLPL
HCK1
HCK2
HST1
VCK1
VCK2
VDD
VST1
EN
CLR
SLCK
XCLR
VSS
HD
FRP
SYNC
BOARD
(EVF MODEL)

Note: The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

no mark:REC or REC/PB
( ):PB

·SIGNAL PATH

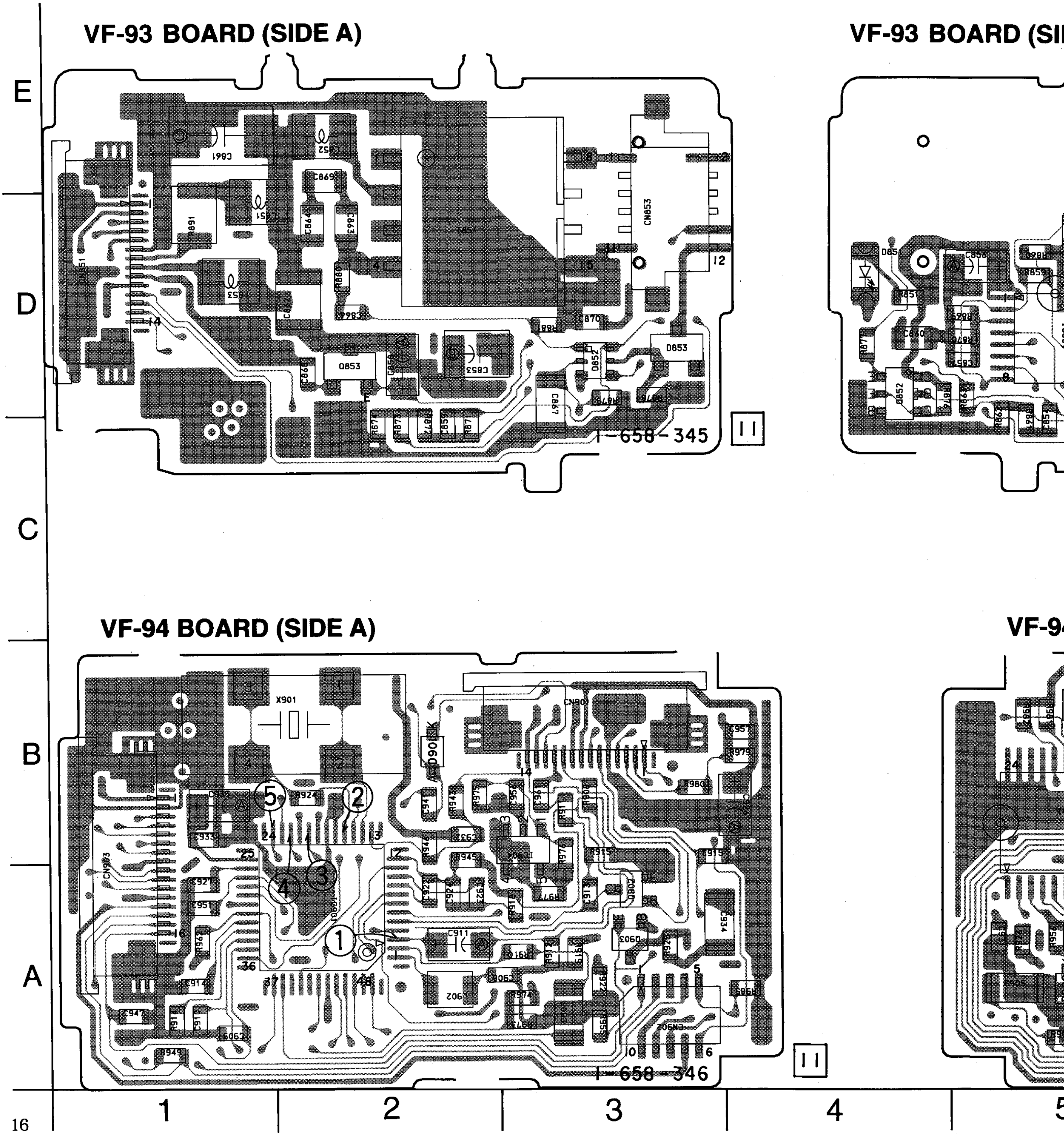
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛		
PB	⇨	⇨		

COLO

There are f

VF-93 (EXTERNAL LIGHT SENSOR), VF-94 (RGB DECODER), LB-44 (BACK LIGHT) PRINTED WIRING BOARDS

— Ref. No. VF-93 Board, VF-94 Board, LB-44 Board; 7,000 Series —



VF-93 BOARD (SIDE A)

VF-93 BOARD (SI

VF-94 BOARD (SIDE A)

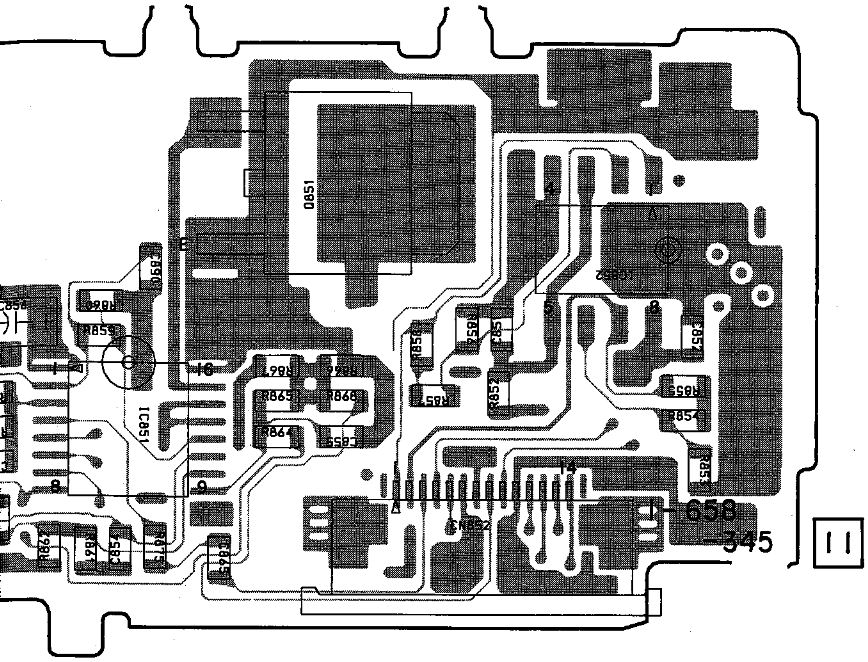
VF-9

E
D
C
B
A
1
2
3
4
5
CN851
R891
C861
L852
C869
L851
C864
C863
R880
L853
C862
C884
T851
CN853
C870
R881
Q853
C853
C858
C866
D852
R879
R874
C867
R877
R873
R872
C859
R871
1-658-345
D851
C856
R866
R859
R851
R877
C860
C869
R870
C857
R876
R863
R862
R864
C854
X901
CN901
C938
R924
C933
CN903
C927
C951
R942
C914
C947
R914
C910
C949
IC901
C941
R943
R975
C952
C933
C945
C922
C924
C923
IC904
R976
R911
R906
R915
R918
D902
C913
C911
R910
R913
R915
R919
D901
D903
R925
C934
C902
R907
R974
R973
C955
R922
CN902
R979
C957
R980
C936
R985
1-658-346

COLOR EVF MODEL

There are few cases that the part printed on this diagram isn't mounted in this model.

ARD (SIDE B)


D851
IC852
IC851
CN852
R850
R851
R852
R853
R854
R855
R856
R857
R858
R859
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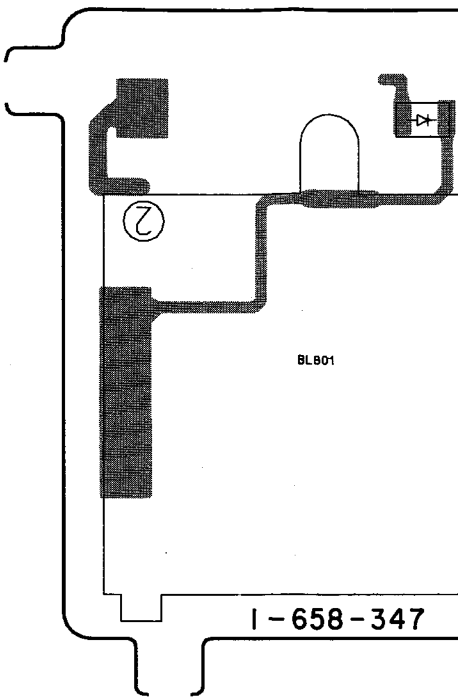
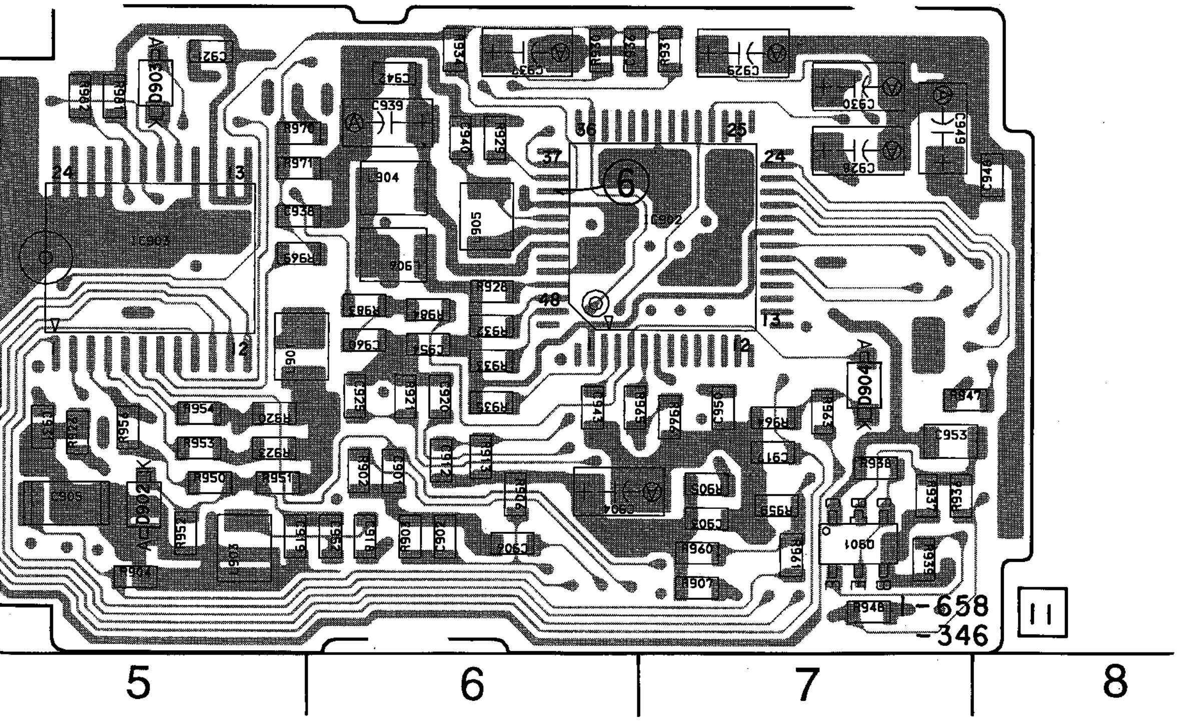
R861
R862
R863
R864
R865
R866
R867
R868
R869
C853
C854
C856
C865
16
8
9
4
5
14
1-658
-345
11

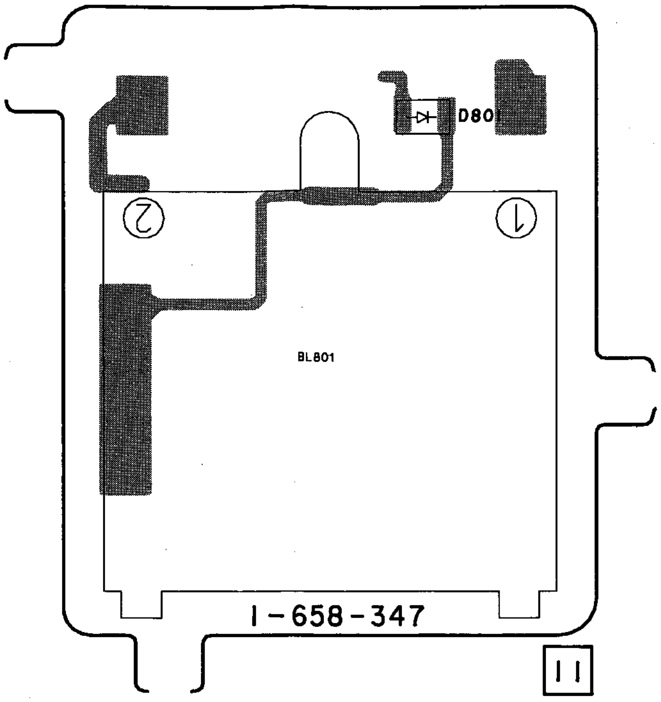
LB-44 BOARD (SIDE


②
BL801
1-658-347

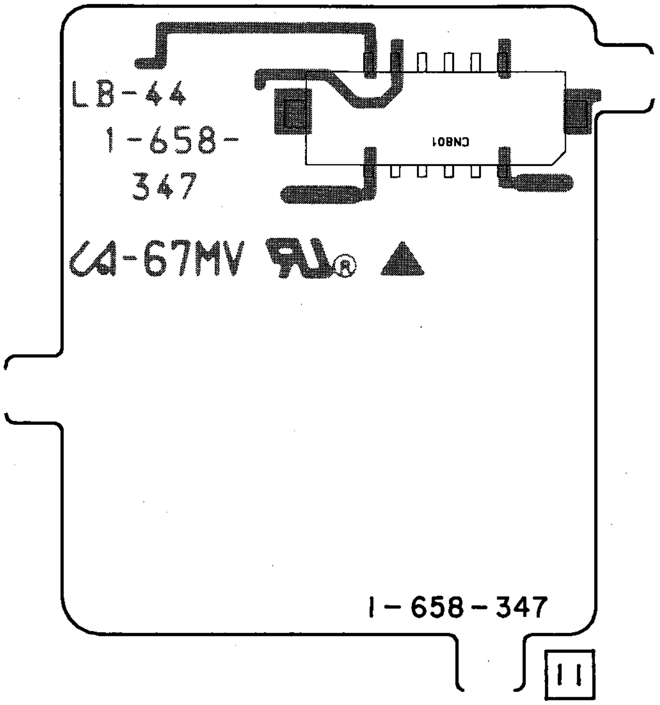
VF-94 BOARD (SIDE B)


IC903
IC902
⑥
IC904
IC905
D902
D903
D904
D901
C921
C929
C930
C932
C933
C939
C940
C941
C946
C949
C953
C905
R947
R948
R950
R951
R952
R953
R954
R955
R970
R971
R928
24
3
2
36
25
37
48
13
12
1-658
-346
11
5
6
7
8

LB-44 BOARD (SIDE A)


D801
②
①
BL801
1-658-347
11

LB-44 BOARD (SIDE B)


LB-44
1-658-
347
CN801
CA-67MV
®
1-658-347
11

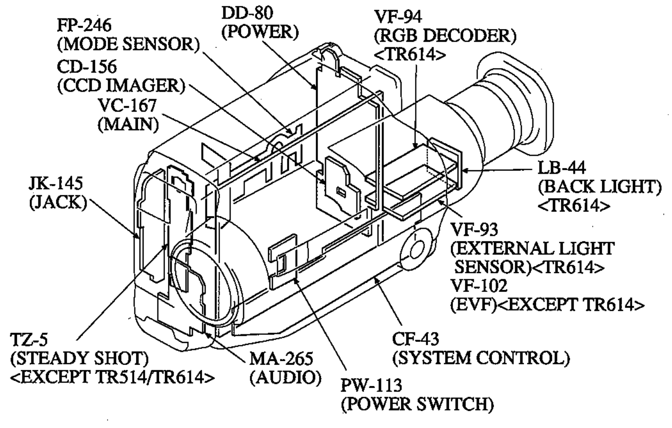
VF-94 BOARD

C901	A–6	C930	B–7	C930C961	B–3	R902	A–6	C930R936	A–7	R981	B–5
C902	A–6	C931	A–5			R903	A–6	R937	A–7	R982	B–5
C903	A–7	C932	B–2	CN901	B–3	R904	A–5	R938	A–7		
C904	A–6	C933	B–1	CN902	A–3	R905	A–7	R939	A–7	X901	B–2
C905	A–5	C934	A–3	CN903	A–1	R906	A–6	R943	B–2		
C906	A–6	C935	B–1			R907	A–7	R947	A–7		
C907	A–3	C936	B–6	D901	B–2	R908	B–3	R948	A–7		
C908	A–3	C937	B–6	D903	B–5	R910	A–3	R949	A–1		
C909	A–1	C938	B–5			R911	B–3	R953	A–5		
C910	A–1	C939	B–6	IC901	A–2	R912	A–3	R954	A–5		
C911	A–2	C940	A–6	IC902	B–7	R914	A–1	R959	A–7		
C913	A–3	C941	B–2	IC903	B–5	R919	A–3	R960	A–7		
C914	A–1	C942	B–6	IC904	B–3	R920	A–5	R961	A–7		
C915	B–3	C943	A–6			R921	A–6	R969	B–5		
C917	A–7	C947	A–1	L901	A–5	R922	A–3	R970	B–5		
C920	A–6	C948	B–8	L902	A–2	R923	A–5	R971	B–5		
C921	B–5	C949	B–7	L904	B–6	R924	B–2	R973	A–3		
C925	A–6	C950	A–7	L905	B–6	R925	A–3	R974	A–3		
C926	B–4	C951	A–1	L906	B–6	R926	A–5	R975	B–2		
C927	A–1	C953	A–7			R930	B–6	R976	B–3		
C928	B–7	C954	A–6	Q901	A–7	R931	B–7	R979	B–4		
C929	B–7	C956	B–3	Q902	A–3	R934	B–6	R980	B–3		

VF-93 BOARD

C851	D–6	C930C866	D–2	C930IC851	D–5	C930R857	D–6	C930R873	C–2
C852	D–7	C867	D–3	IC852	D–6	R858	D–6	R874	C–2
C853	D–2	C868	D–2			R859	D–5	R875	C–5
C854	C–5	C869	E–2	L851	D–1	R860	D–5	R878	D–3
C855	D–6	C870	D–3	L852	E–2	R861	C–5	R879	D–3
C856	D–5	C890	D–5	L853	D–1	R862	C–5	R880	D–2
C857	D–5			Q851	E–5	R863	D–5	R881	D–3
C858	D–2	CN851	D–1	Q853	D–2	R864	D–5	R891	D–1
C859	C–2	CN852	D–6			R865	D–5		
C860	D–4	CN853	D–3	R851	D–4	R867	D–5	T851	D–2
C861	E–2			R852	D–6	R868	D–6		
C862	D–2	D851	D–4	R853	D–7	R869	D–5		
C863	D–2	D852	D–3	R854	D–7	R870	D–5		
C864	D–2	D853	D–3	R855	D–7	R871	C–2		
C865	C–5			R856	D–6	R872	C–2		

TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
PW-113
(POWER SWITCH)
CF-43
(SYSTEM CONTROL)

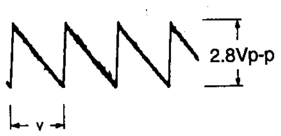
VF-102 (EVF) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

— Ref. No. : VF-102 Board; 6,000 Series —

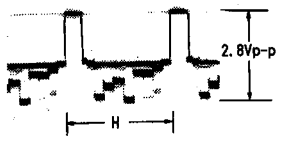
B/W EVF MODEL

VF-102 BOARD

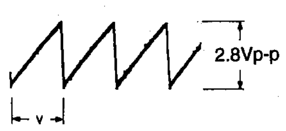
① IC901 ③ REC/PB



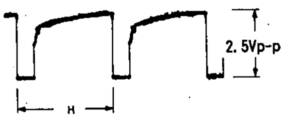
④ IC901 ⑬ REC/PB



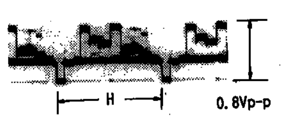
② IC901 ⑤ REC/PB



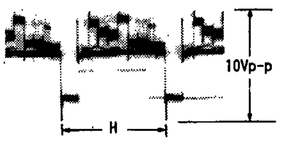
⑤ IC901 ⑯ REC/PB

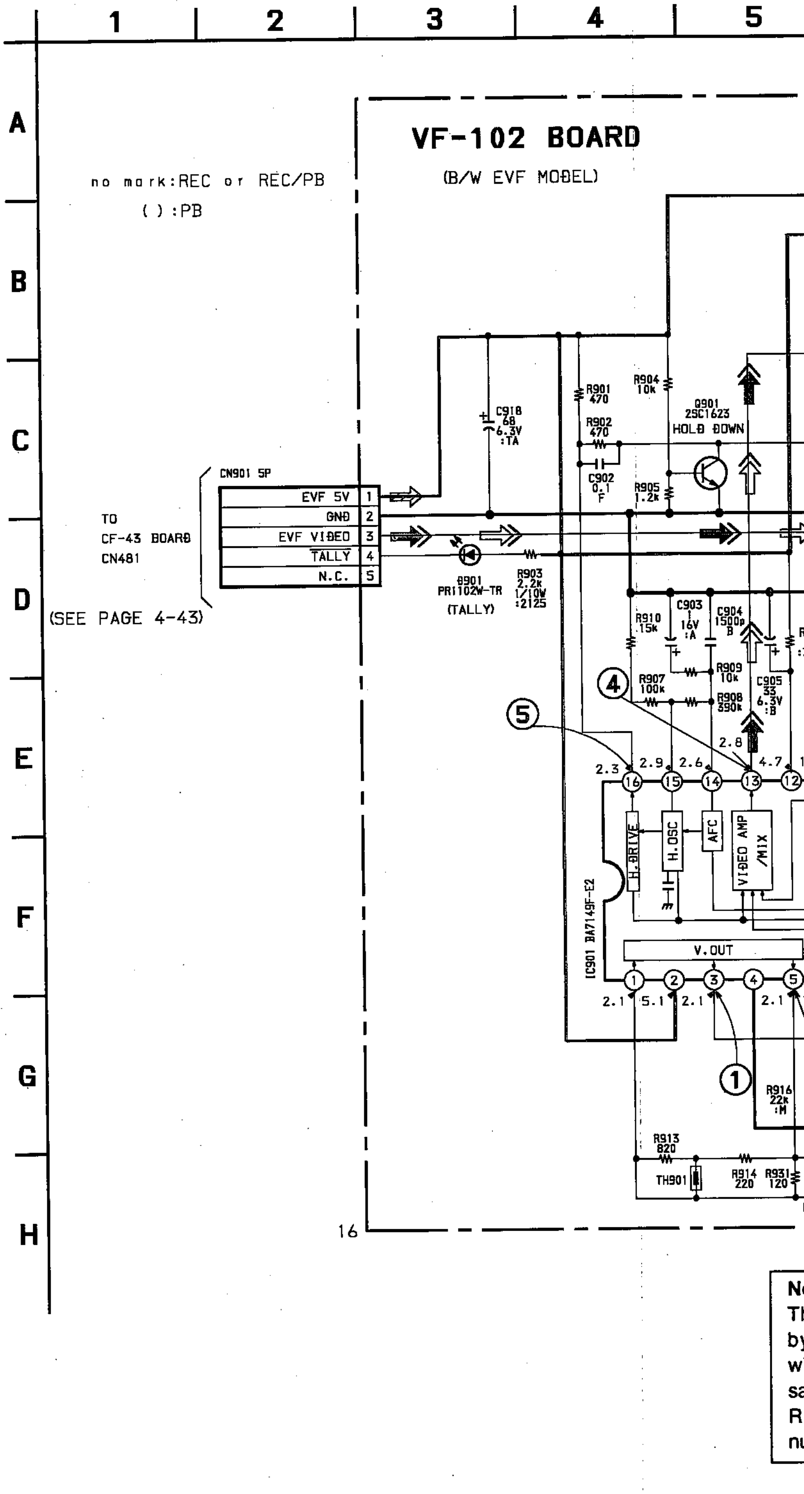


③ IC901 ⑪

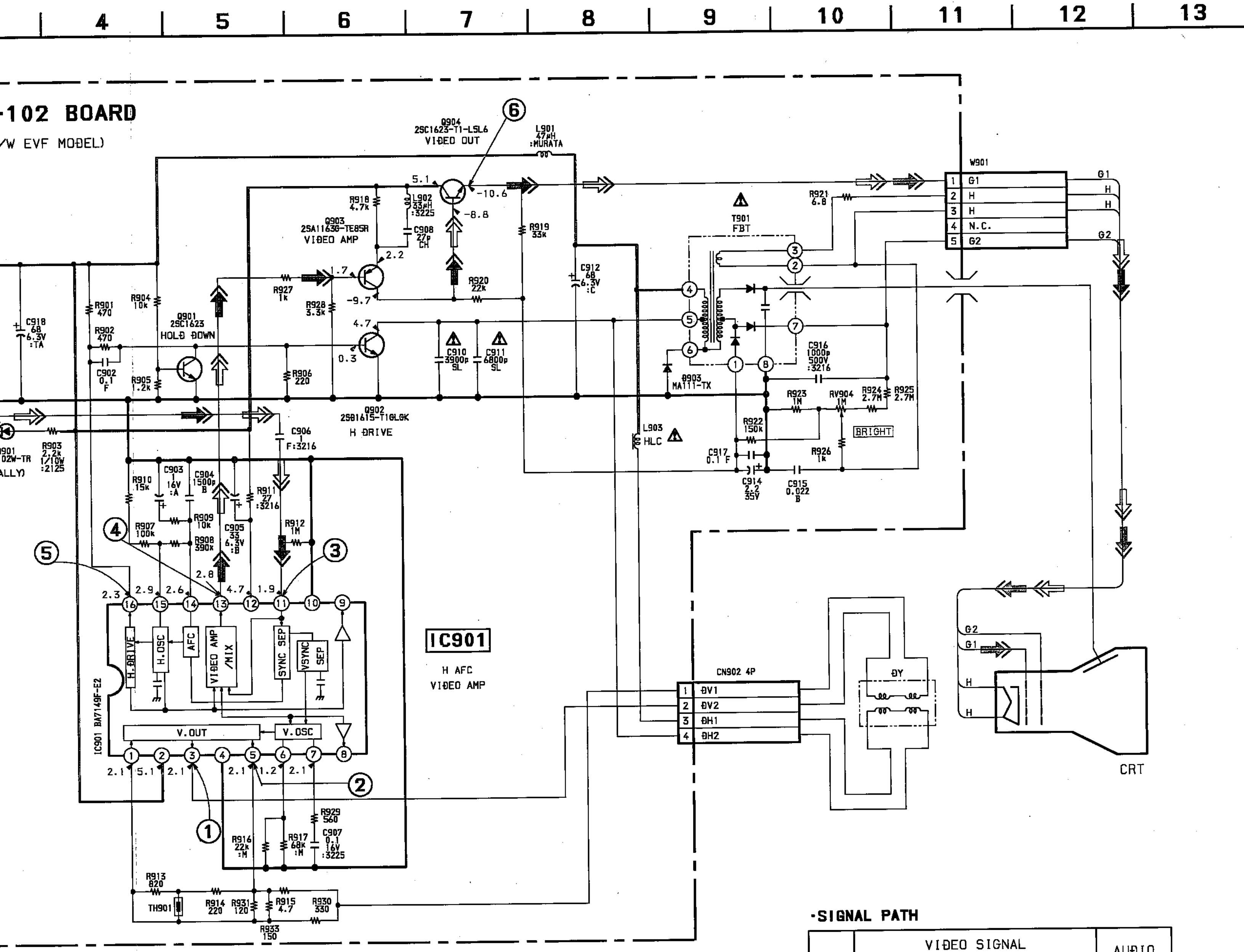


⑥ Q904 Ⓔ




1
2
3
4
5
A
B
C
D
E
F
G
H
VF-102 BOARD
(B/W EVF MODEL)
no mark:REC or REC/PB
( ):PB
CN901 5P
EVF 5V
GND
EVF VIDEO
TALLY
N.C.
TO CF-43 BOARD CN481
(SEE PAGE 4-43)
C918 68 6.3V :TA
R901 470
R902 470
R904 10k
Q901 2SC1623 HOLD DOWN
C902 0.1 F
R905 1.2k
D901 PR1102W-TR (TALLY)
R903 2.2k 1/10W :2125
R910 15k
C903 1 16V :A
C904 1500p B
R909 10k
R907 100k
R908 390k
C905 33 6.3V :B
2.3
2.9
2.6
2.8
4.7
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
IC901 BA7149F-E2
V.OUT
2.1
5.1
2.1
2.1
R916 22k :M
R913 820
TH901
R914 220
R931 120
16
N
Th
by
w
sa
R
nu

EL



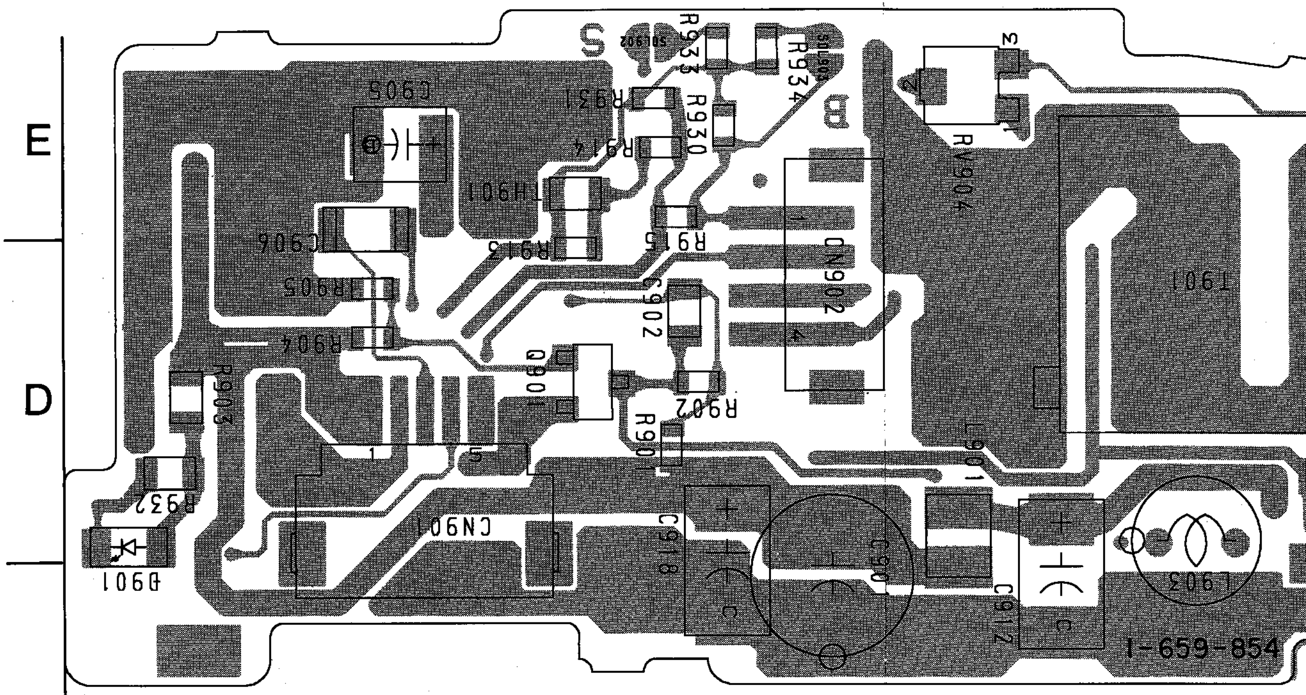
4
5
6
7
8
9
10
11
12
13
-102 BOARD
/W EVF MODEL)
Q904 2SC1623-T1-LSL6 VIDEO OUT
⑥
L901 47μH :MURATA
W901
1 G1
2 H
3 H
4 N.C.
5 G2
G1
H
H
G2
R921 6.8
T901 FBT
R918 4.7k
L902 33μH :3225
-10.6
-8.8
5.1
Q903 2SA1163G-TE85R VIDEO AMP
C908 27p CH
R919 33k
2.2
1.7
R927 1k
R920 22k
C912 68 6.3V :C
R928 3.3k
-9.7
4.7
0.3
R901 470
R904 10k
Q901 2SC1623 HOLD DOWN
C918 68 6.3V :TA
R902 470
C902 0.1 F
R905 1.2k
R906 220
C910 3900p SL
C911 6800p SL
Q902 2SB1615-T16LGK H DRIVE
D903 MA111-TX
C916 1000p 500V :3216
R923 1M
RV904 1M
R924 2.7M
R925 2.7M
BRIGHT
R922 150k
R926 1k
L903 HLC
C917 0.1 F
C914 2.2 35V
C915 0.022 B
C906 1 F:3216
R903 2.2k 1/10W :2125
R910 15k
C903 1 16V :A
C904 1500p B
R911 27 :3216
R907 100k
R909 10k
R908 390k
C905 33 6.3V :B
R912 1M
④
⑤
③
2.8
2.3
2.9
2.6
4.7
1.9
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC
SEP
V.OUT
V.OSC
IC901 BA7149F-E2
IC901
H AFC
VIDEO AMP
2.1
5.1
2.1
2.1
1.2
2.1
②
①
R929 560
R916 22k :M
R917 68k :M
C907 0.1 16V :3225
R913 820
TH901
R914 220
R931 120
R915 4.7
R930 330
R933 150
CN902 4P
1 DV1
2 DV2
3 DH1
4 DH2
DY
G2
G1
H
H
CRT

Note:	Note:
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

·SIGNAL PATH

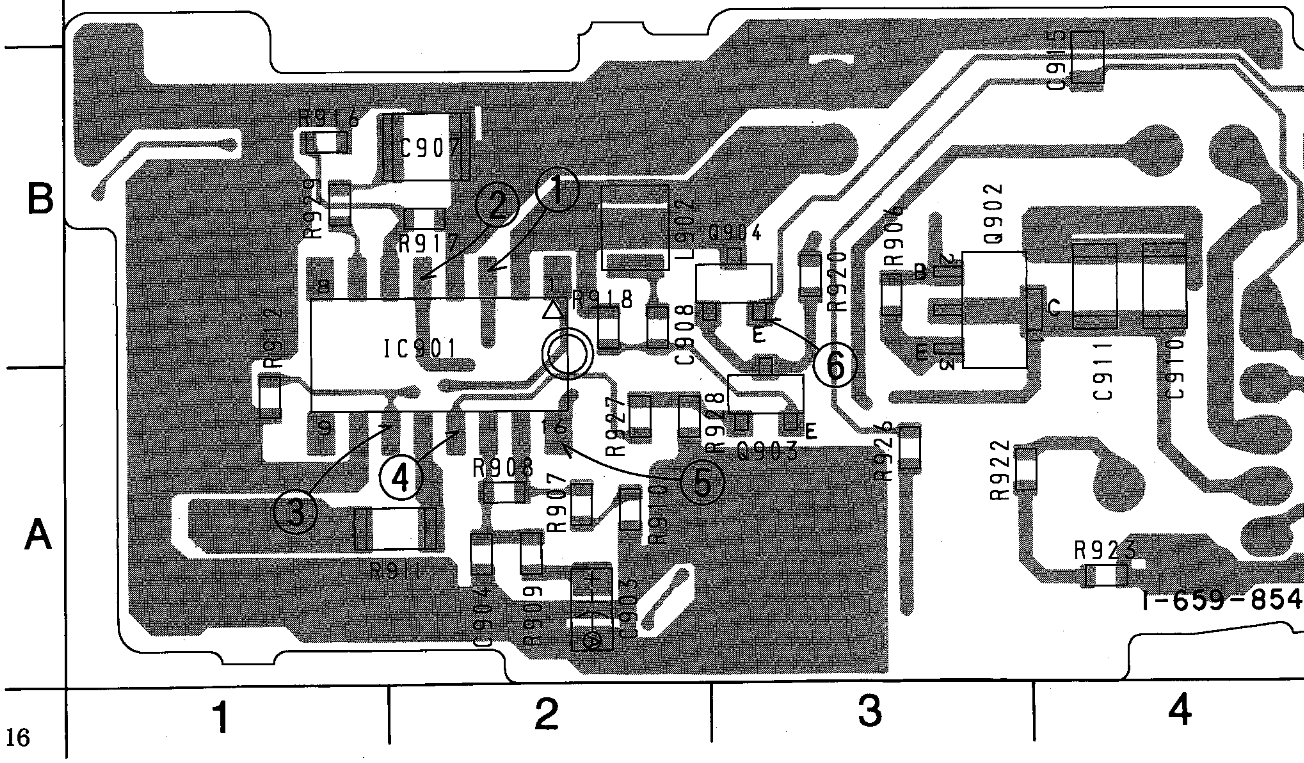
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC		➡		
PB		⇨		

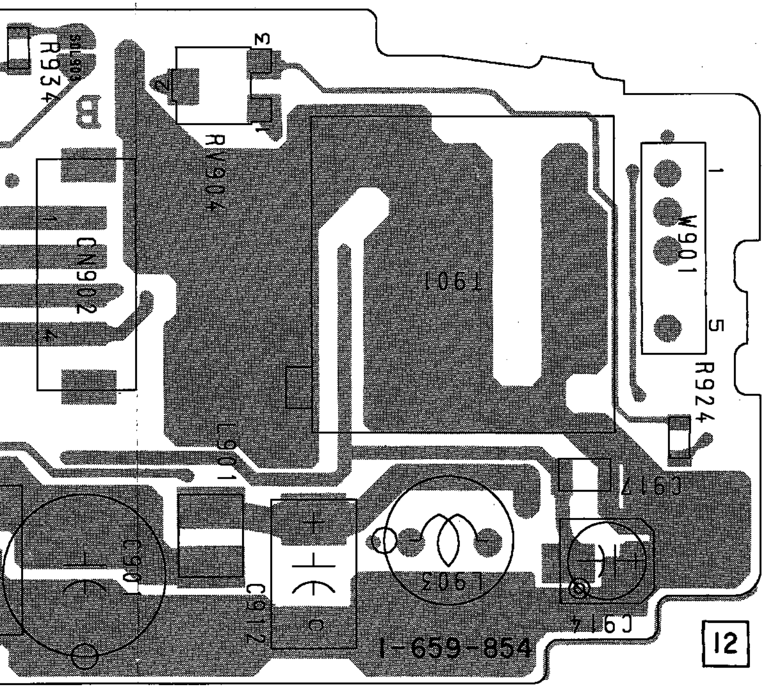
VF-102 BOARD (SIDE A)

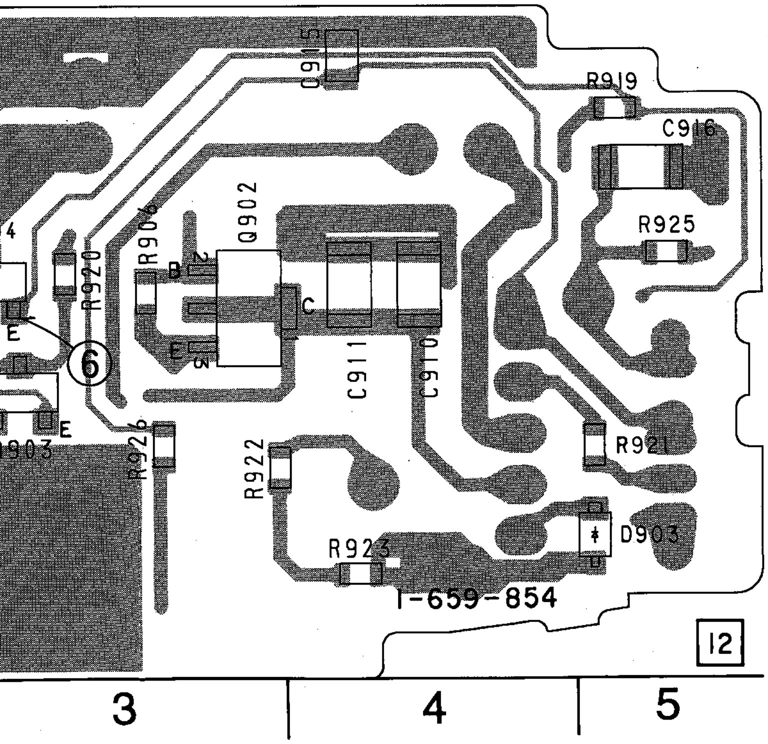

E
D
S
SD902
R933
R934
B
R931
R930
R914
C905
TH901
R913
R915
C906
CN902
R905
C902
R904
Q901
R903
R902
R90
T901
RV904
L901
R932
CN901
D901
C918
C912
L903
1-659-854

C

VF-102 BOARD (SIDE B)


B
A
R916
C907
R929
R917
②
①
L902
Q904
R918
IC901
R912
C908
⑥
R927
R928
Q903
E
④
⑤
③
R908
R907
R910
R911
C904
R909
C903
R920
R906
Q902
B
C
E
C911
C910
C915
R926
R922
R923
1-659-854
1
2
3
4

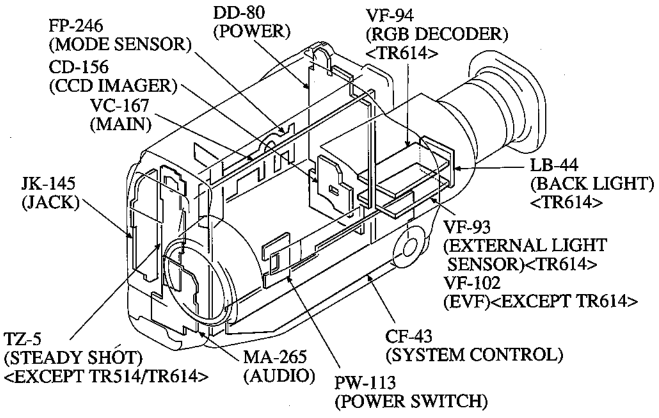

R934
RV904
3
2
1
CN902
1
4
T901
W901
1
5
R924
L901
C917
C912
L903
C914
1-659-854
12


C915
R919
C916
R925
Q902
R904
R920
4
B
C
E
2
3
6
E
903
C911
C910
R926
R922
R921
D903
R923
1-659-854
12
3
4
5

VF-102 BOARD

C902	D–3	L902	B–2	R918	B–2
C903	A–2	L903	D–4	R919	B–5
C904	A–2			R920	B–3
C905	E–2	Q901	D–2	R921	A–5
C906	D–1	Q902	B–3	R922	A–3
C907	B–2	Q903	A–3	R923	A–4
C908	B–2	Q904	B–3	R924	D–5
C910	B–4			R925	B–5
C911	B–4	R901	D–2	R926	A–3
C912	D–4	R902	D–3	R927	A–2
C914	C–5	R903	D–1	R928	A–3
C915	B–4	R904	D–1	R929	B–1
C916	B–5	R905	D–1	R930	E–3
C917	D–5	R906	B–3	R931	E–2
C918	D–3	R907	A–2	R933	E–3
		R908	A–2		
CN901	D–2	R909	A–2	RV904	E–3
CN902	D–3	R910	A–2		
		R911	A–2	T901	D–4
D901	D–1	R912	B–1		
D903	A–5	R913	D–2	TH901	E–2
		R914	E–2		
IC901	B–2	R915	E–3	W901	E–5
		R916	B–1		
L901	D–3	R917	B–2		

TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL


DD-80
(POWER)
FP-246
(MODE SENSOR)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
VF-94
(RGB DECODER)
<TR614>
LB-44
(BACK LIGHT)
<TR614>
JK-145
(JACK)
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
PW-113
(POWER SWITCH)
CF-43
(SYSTEM CONTROL)

STEADY SHOT (DIGITAL ZO

TZ-5 (STEADY SHOT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

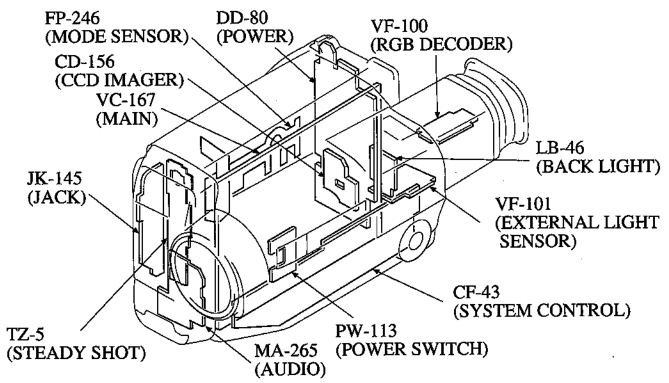
— Ref. No. : TZ-5 Board; 5,000 Series —

There are few cases that the part printed on this diagr

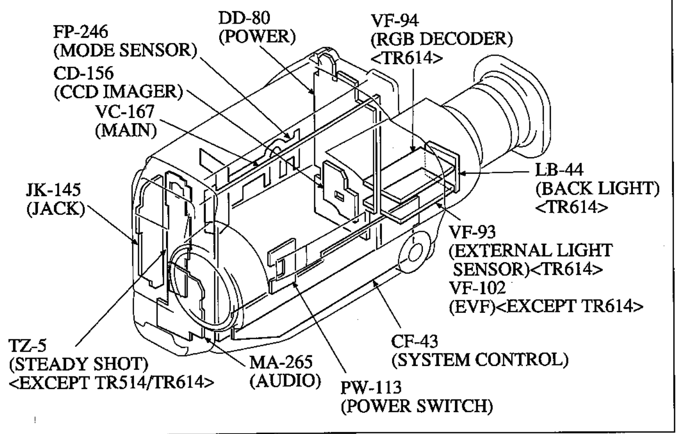
TZ-5 BOARD

C650	D–1
C651	D–3
C652	E–3
C653	E–3
C654	D–2
C655	E–2
C656	D–3
C657	D–3
C658	D–1
C659	D–3
C660	B–3
C661	A–3
C663	D–1
C664	E–1
C665	E–2
C666	E–2
C668	E–3
C669	B–3
C672	D–5
C673	B–5
C674	E–4
C675	E–4
CN650	B–4
CN651	C–3
IC650	D–3
IC651	E–1
IC652	E–2
IC653	E–3
IC655	D–5
L650	B–3
L652	E–5
Q650	E–3
R650	D–1
R651	D–3
R652	D–2
R653	D–3
R654	E–3
R655	E–3
R656	E–2
R658	D–3
R659	D–3
R660	D–2
R661	E–2
R662	D–1
R663	E–1
R664	D–2
R665	D–1
R666	E–1
R667	E–2
R668	D–2
R669	E–2
R670	E–3
R672	E–4
R673	D–5
R674	B–5
R675	B–5
R676	D–5
R682	D–4
R683	D–4
R684	D–4
R685	D–5
R688	D–1
R689	E–2
R690	C–3
R691	C–3
SE650	B–2
SE651	B–4
X650	E–5

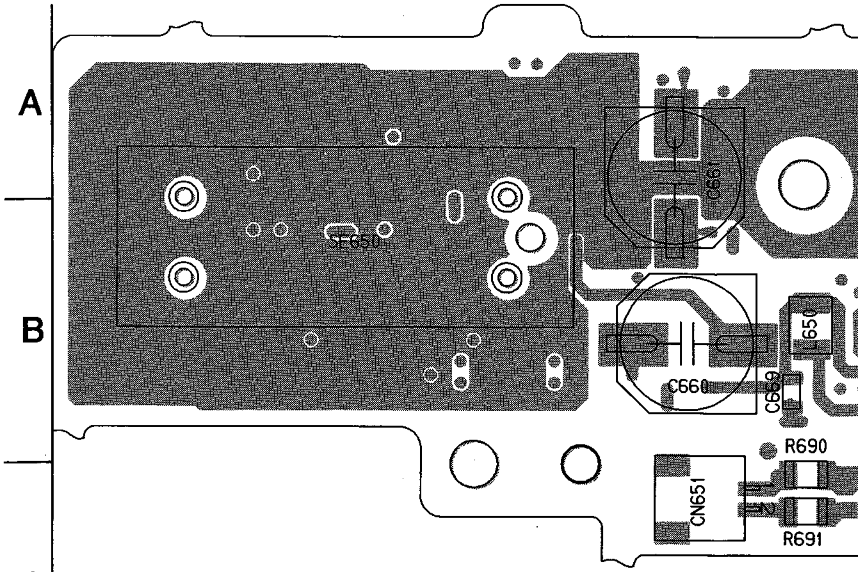
TR98/TR99/TR590/TR590PK/TR714 (SOLAR COLOR EVF) MODEL.


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-100
(RGB DECODER)
CD-156
(CCD IMAGER)
VC-167
(MAIN)
LB-46
(BACK LIGHT)
JK-145
(JACK)
VF-101
(EXTERNAL LIGHT
SENSOR)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)
TZ-5
(STEADY SHOT)
MA-265
(AUDIO)

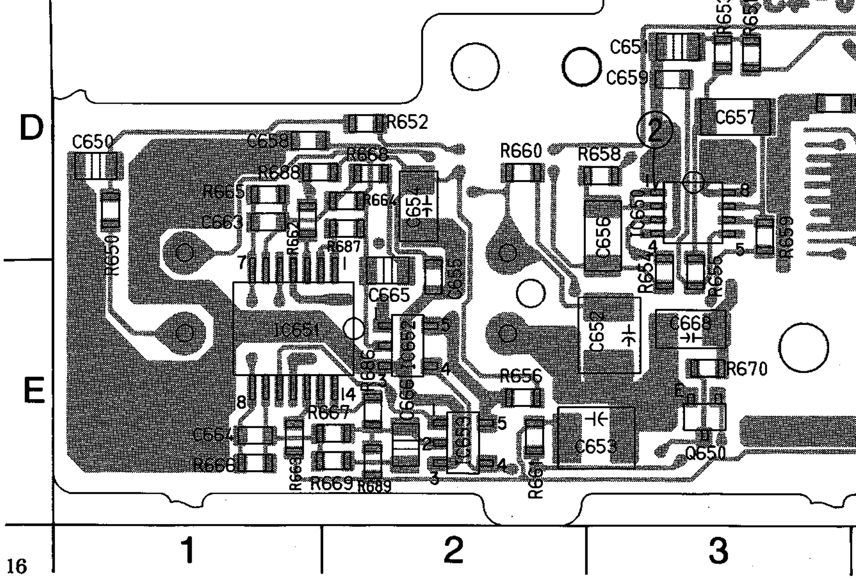
TR78/TR88/TR514/TR614/TR814 (COLOR and B/W EVF) MODEL


FP-246
(MODE SENSOR)
DD-80
(POWER)
VF-94
(RGB DECODER)
<TR614>
CD-156
(CCD IMAGER)
VC-167
(MAIN)
JK-145
(JACK)
LB-44
(BACK LIGHT)
<TR614>
VF-93
(EXTERNAL LIGHT
SENSOR)<TR614>
VF-102
(EVF)<EXCEPT TR614>
TZ-5
(STEADY SHOT)
<EXCEPT TR514/TR614>
MA-265
(AUDIO)
CF-43
(SYSTEM CONTROL)
PW-113
(POWER SWITCH)

TZ-5 BOARD (SIDE A)

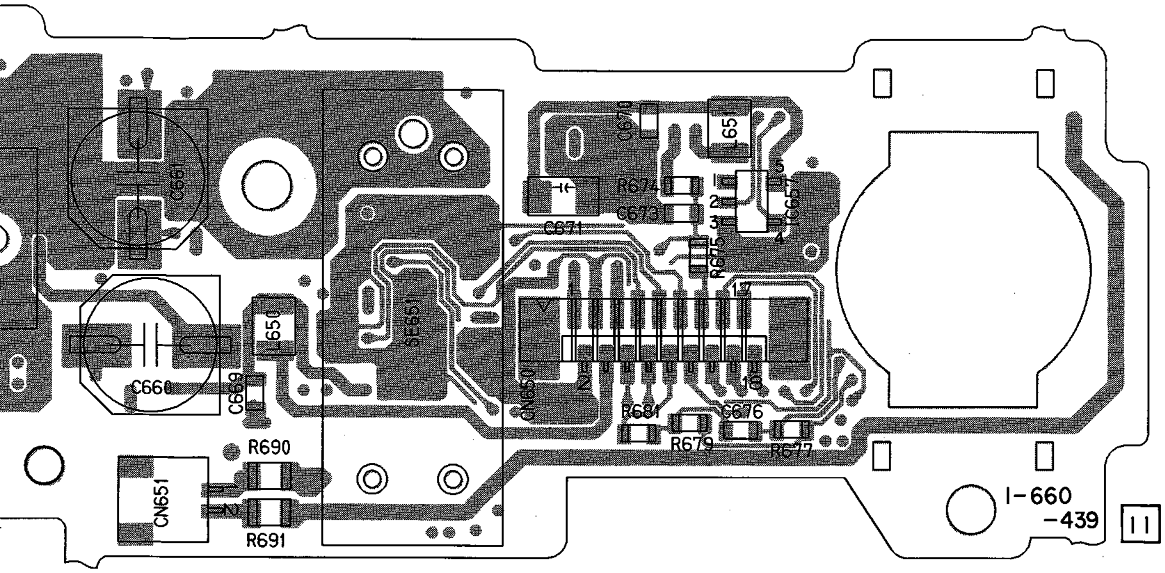

A
B
C
SE650
C661
C660
C669
L650
R690
CN651
R691

TZ-5 BOARD (SIDE B)

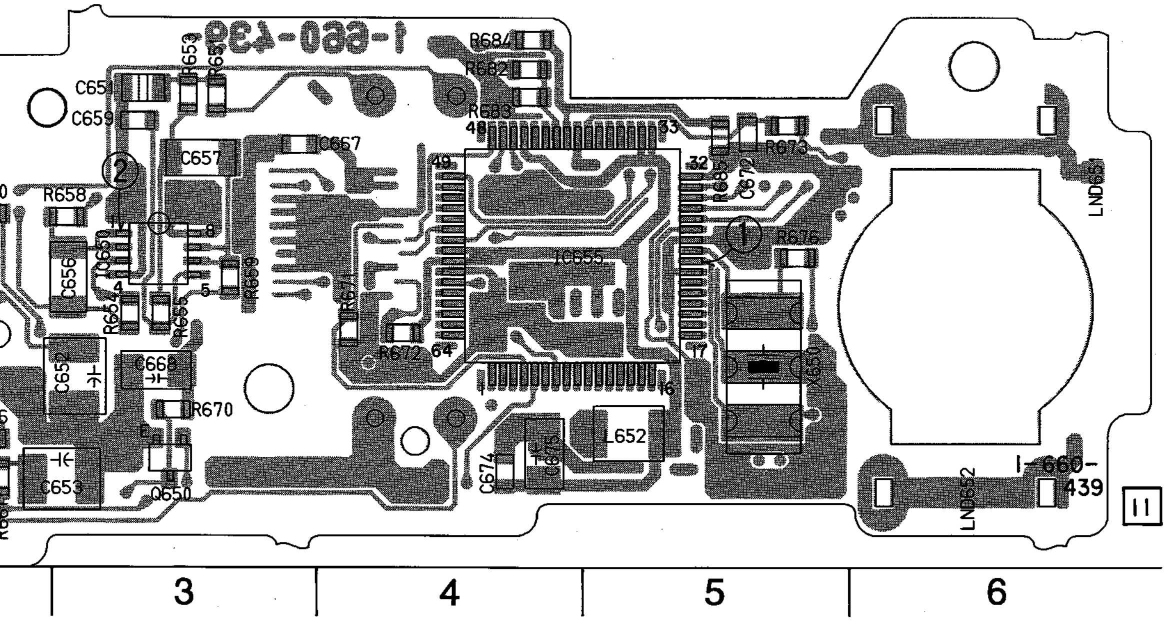

D
E
C650
C658
R652
R668
R688
R665
C663
R650
R664
C654
R687
R662
R660
R658
C657
C651
C659
R653
C656
R659
C665
C655
IC651
C652
C668
R670
R656
R667
C664
R666
R669
R689
C653
Q650
R654
R655
16
1
2
3

OT (DIGITAL ZOOM) MODEL

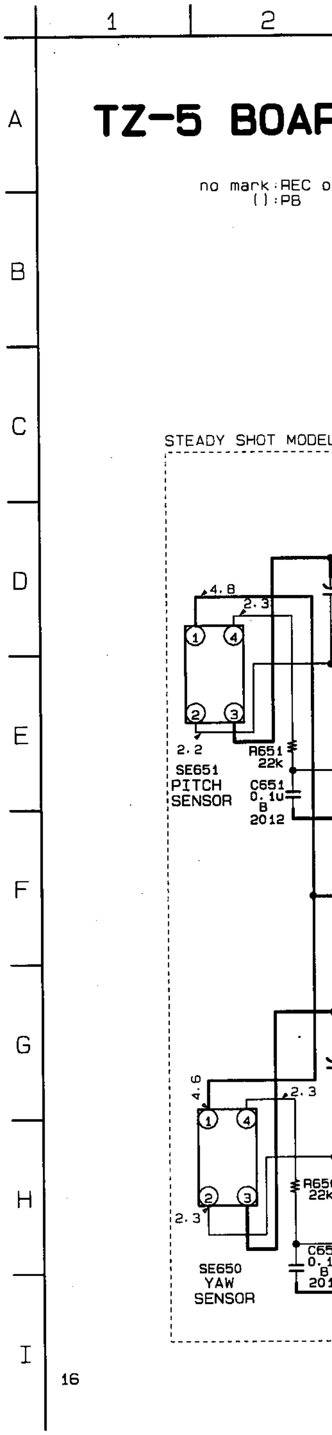
at the part printed on this diagram isn't mounted in this model.



C661
C660
L650
C669
R690
CN651
R691
SE651
CN650
C670
L65
R674
C673
C671
R675
IC657
R681
R679
C676
R677
I-660
-439
11



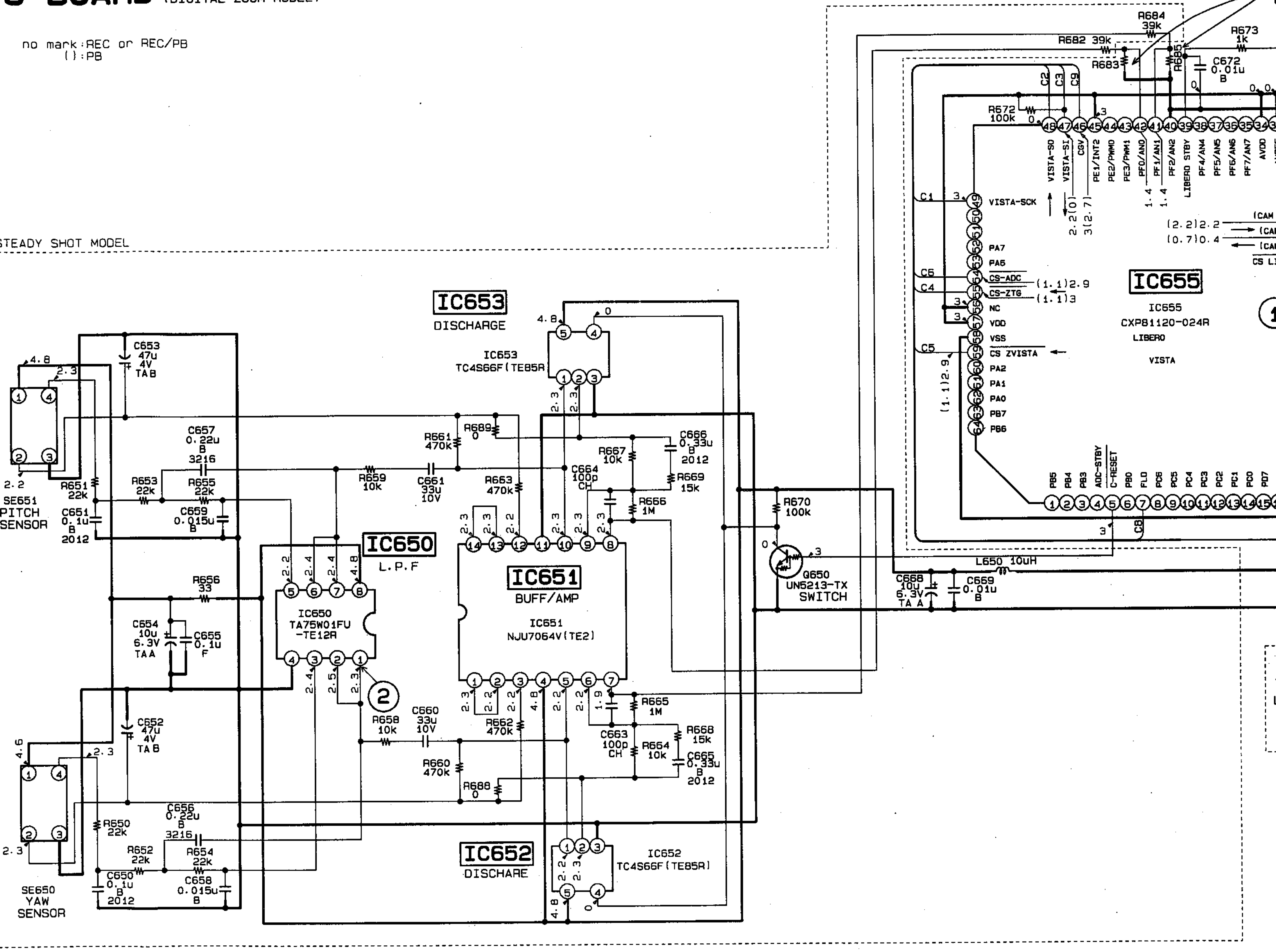
I-660-439
R684
R682
R683
C65
C659
R653
R65
C657
C667
R658
②
IC652
C656
R659
R671
IC655
①
R676
R673
R672
64
48
33
49
32
17
16
C652
C668
R670
C653
Q650
C674
C675
L652
X650
LND651
LND652
I-660-
439
11
3
4
5
6

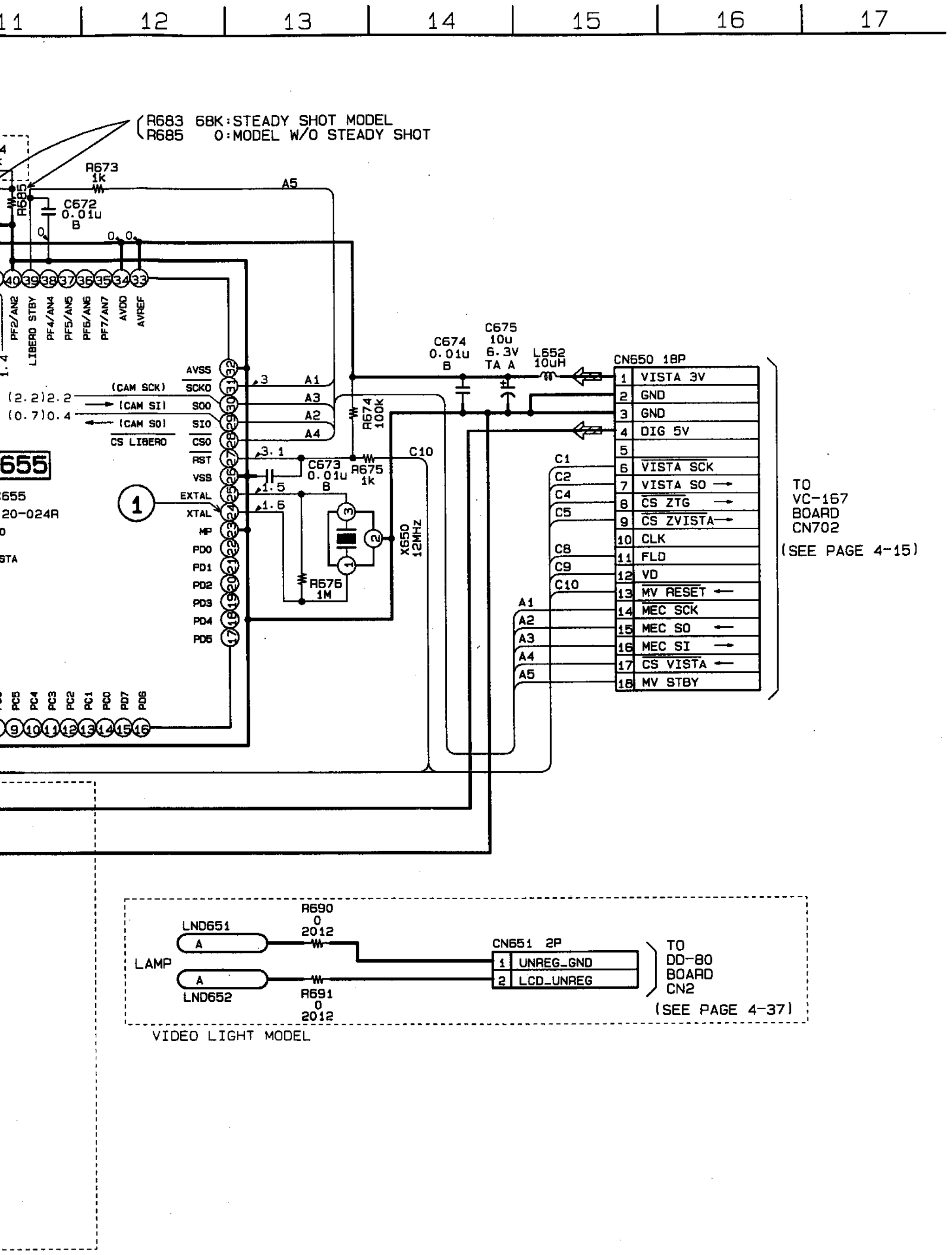


1
2
A
B
C
D
E
F
G
H
I
TZ-5 BOAR
no mark:REC o
( ):PB
STEADY SHOT MODEL
4.8
2.3
2.2
SE651
PITCH
SENSOR
R651
22k
C651
0.1u
B
2012
4.6
2.3
2.3
R650
22k
C65
SE650
YAW
SENSOR
16

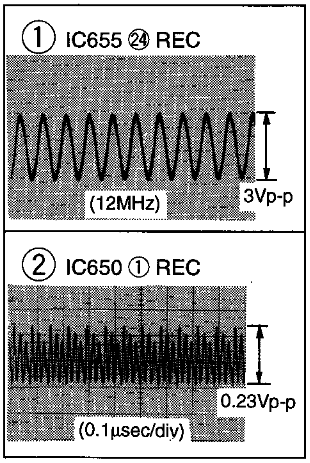
-5 BOARD (DIGITAL ZOOM MODEL)

no mark : REC or REC/PB
( ) : PB


STEADY SHOT MODEL
IC653
DISCHARGE
IC653
TC4S66F(TE85R)
IC650
L.P.F
IC650
TA75W01FU
-TE12R
IC651
BUFF/AMP
IC651
NJU7064V(TE2)
IC652
DISCHARE
IC652
TC4S66F(TE85R)
IC655
CXP81120-024R
LIBERO
VISTA
SE651
PITCH
SENSOR
SE650
YAW
SENSOR
Q650
UN5213-TX
SWITCH
L650 10uH
C668 10u 6.3V TA A
C669 0.01u B
R670 100k
C653 47u 4V TAB
C652 47u 4V TA B
C657 0.22u B 3216
C656 0.22u B 3216
R651 22k
R650 22k
R653 22k
R652 22k
R655 22k
R654 22k
C651 0.1u B 2012
C650 0.1u B 2012
C659 0.015u B
C658 0.015u B
R656 33
C654 10u 6.3V TA A
C655 0.1u F
R659 10k
C661 33u 10V
R658 10k
C660 33u 10V
R661 470k
R689 0
R663 470k
R662 470k
R660 470k
R688 0
R667 10k
C664 100p CH
R666 1M
C666 0.33u B 2012
R669 15k
R665 1M
C663 100p CH
R664 10k
R668 15k
C665 0.33u B 2012
R684 39k
R682 39k
R683
R685
R673 1k
C672 0.01u B
R672 100k
C1
C2
C3
C4
C5
C6
C8
C9
VISTA-SO
VISTA-SI
CSV
PE1/INT2
PE2/PWM0
PE3/PWM1
PF0/AN0
PF1/AN1
PF2/AN2
LIBERO STBY
PF4/AN4
PF5/AN5
PF6/AN6
PF7/AN7
AVDD
VISTA-SCK
PA7
PA6
CS-ADC
CS-ZTG
NC
VDD
VSS
CS ZVISTA
PA2
PA1
PA0
PB7
PB6
PB5
PB4
PB3
ADC-STBY
C-RESET
PB0
FLO
PC6
PC5
PC4
PC3
PC2
PC1
PC0
PD7
(CAM
(CAM
(CAM
CS L
(2.2)2.2
(0.7)0.4
(1.1)2.9
(1.1)3
(1.1)2.9
2.2(0)
3(2.7)
1.4
1.4
4.8
2.3
2.2
4.6
2.3
2.3
2.2
2.4
2.4
4.8
2.4
2.5
2.3
1.9
0
3
②


11
12
13
14
15
16
17
R683 68K:STEADY SHOT MODEL
R685 0:MODEL W/O STEADY SHOT
R673 1k
A5
R685
C672 0.01u B
0
0
0
PF2/AN2
LIBERO STBY
PF4/AN4
PF5/AN5
PF6/AN6
PF7/AN7
AVDD
AVREF
AVSS
(CAM SCK) SCKO
(2.2)2.2 (CAM SI) SOO
(0.7)0.4 (CAM SO) SIO
CS LIBERO CSO
RST
VSS
EXTAL
XTAL
MP
PD0
PD1
PD2
PD3
PD4
PD5
655
IC655
20-024R
STA
1
3
3.1
1.5
1.6
A1
A3
A2
A4
R674 100k
C673 0.01u B
R675 1k
C10
X650 12MHz
R676 1M
C674 0.01u B
C675 10u 6.3V TA A
L652 10uH
CN650 18P
1 VISTA 3V
2 GND
3 GND
4 DIG 5V
5
6 VISTA SCK
7 VISTA SO
8 CS ZTG
9 CS ZVISTA
10 CLK
11 FLD
12 VD
13 MV RESET
14 MEC SCK
15 MEC SO
16 MEC SI
17 CS VISTA
18 MV STBY
C1
C2
C4
C5
C8
C9
C10
A1
A2
A3
A4
A5
TO VC-167 BOARD CN702
(SEE PAGE 4-15)
PC5
PC4
PC3
PC2
PC1
PC0
PD7
PD6
LND651
LND652
LAMP
A
A
R690 0 2012
R691 0 2012
CN651 2P
1 UNREG_GND
2 LCD_UNREG
TO DD-80 BOARD CN2
(SEE PAGE 4-37)
VIDEO LIGHT MODEL

TZ-5 BOARD


① IC655 ㉔ REC
3Vp-p
(12MHz)
② IC650 ① REC
0.23Vp-p
(0.1μsec/div)

5-2. ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifie.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be defferent from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μ PB... , uPC... , μPC... ,
  uPD..., μPD...
- CAPACITORS:
  uF: μF
- COILS
  uH: μH

Ref. No.	Part No.	Description	Remarks
	A-7072-590-A	CD-156 BOARD, COMPLETE ***********************	(TR78/TR514/TR614/TR714)
	A-7072-503-A	CD-156 BOARD, COMPLETE ***********************	(TR88/TR98/TR99/TR590/TR814) (Ref.No.2,000 Series)
		< CAPACITOR >	
C790	1-126-603-11	ELECT CHIP 4.7uF 20% 35V	
C791	1-164-346-11	CERAMIC CHIP 1uF 16V	
C792	1-126-607-11	ELECT CHIP 47uF 20% 4V	
C793	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C794	1-126-603-11	ELECT CHIP 4.7uF 20% 35V	
C795	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	(TR78/TR514/TR614/TR714)
		< CONNECTOR >	
CN790	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P	
		< IC >	
IC790	A-7030-368-A	CCD BLOCK ASSY (ICX054AK-12) (CCD IMAGER)	(TR78/TR514/TR614/TR714)
IC790	A-7030-373-A	CCD BLOCK ASSY (ICX059AK-42) (CCD IMAGER)	(TR88/TR98/TR99/TR590/TR814)
		< COIL >	
L790	1-412-963-11	INDUCTOR 100uH	
		< TRANSISTOR >	
Q790	8-729-117-73	TRANSISTOR 2SC4178	
Q791	8-729-232-86	TRANSISTOR 2SK1875-BL/V	
		< RESISTOR >	
R791	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR78/TR514/TR614/TR714)
R791	1-216-840-11	METAL CHIP 39K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R792	1-216-819-11	METAL CHIP 680 5% 1/16W	(TR78/TR514/TR614/TR714)
R792	1-216-820-11	METAL CHIP 820 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R793	1-216-849-11	METAL CHIP 220K 5% 1/16W	(TR78/TR514/TR614/TR714)
R793	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R794	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R795	1-216-809-11	METAL CHIP 100 5% 1/16W	
R796	1-216-833-11	METAL CHIP 10K 5% 1/16W	
	A-7092-858-A	CF-43 BOARD, COMPLETE **********************	(TR78)
	A-7092-781-A	CF-43 BOARD, COMPLETE **********************	(TR814)
	A-7092-837-A	CF-43 BOARD, COMPLETE **********************	(TR99)
	A-7092-783-A	CF-43 BOARD, COMPLETE **********************	(TR714)
	A-7092-784-A	CF-43 BOARD, COMPLETE **********************	(TR514/TR614)
	A-7092-791-A	CF-43 BOARD, COMPLETE **********************	(TR590)
	A-7092-840-A	CF-43 BOARD, COMPLETE **********************	(TR88/TR98) (Ref.No.2,000 Series)
		< HOLDER >	
BH480	1-550-104-11	HOLDER, BATTERY	
		< BUZZER >	
BZ480	1-529-107-11	BUZZER, PIEZOELECTRIC	
		< CAPACITOR >	
C300	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C301	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C302	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C303	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C304	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description			Remarks
C305	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C306	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C308	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C310	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C311	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C312	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C313	1-164-156-11	CERAMIC CHIP	0.1uF		25V (EXCEPT TR514/TR614)
C314	1-135-091-91	TANTAL. CHIP	1uF	20%	16V (EXCEPT TR514/TR614)
C315	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C316	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C317	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C318	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C319	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C320	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C321	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C323	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C325	1-104-850-11	TANTAL. CHIP	6.8uF	20%	10V
C326	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C327	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C328	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR590)
C337	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V (TR99/TR590)

< CONNECTOR >

Ref. No.	Part No.	Description
CN480	1-774-054-21	CONNECTOR, FFC/FPC (ZIF) 45P
CN481	1-691-346-11	CONNECTOR, FFC/FPC (ZIF) 8P
CN482	1-764-705-11	CONNECTOR, FFC/FPC (LIF) 6P
CN483	1-766-354-21	CONNECTOR, FFC/FPC 24P (TR99/TR590)

< DIODE >

Ref. No.	Part No.	Description		Remarks
D300	8-719-404-49	DIODE	MA111	
D301	8-719-027-50	DIODE	MA142WK	
D303	8-719-052-33	DIODE	MAZV082DFL	
D304	8-719-052-33	DIODE	MAZV082DFL	
D309	8-719-052-33	DIODE	MAZV082DFL	(TR78/TR88/TR98/TR99/TR590)
D310	8-719-052-33	DIODE	MAZV082DFL	(TR78/TR88/TR98/TR99/TR590)
D312	8-719-052-33	DIODE	MAZV082DFL	
D314	8-719-404-49	DIODE	MA111	(EXCEPT TR514/TR614)
D315	8-719-404-49	DIODE	MA111	(EXCEPT TR514/TR614)
⚠D316	8-719-027-76	DIODE	1SS357-TPH3	
D317	8-719-404-49	DIODE	MA111	
D318	8-719-404-49	DIODE	MA111	(EXCEPT TR514/TR614)
D321	8-719-404-49	DIODE	MA111	
D323	8-719-404-49	DIODE	MA111	
D324	8-719-420-14	DIODE	MA8082-M	
D325	8-719-052-33	DIODE	MAZV082DFL	
D327	8-719-420-14	DIODE	MA8082-M	
D328	8-719-420-14	DIODE	MA8082-M	
D331	8-719-027-48	DIODE	MA142WA	(TR99/TR590)
D332	8-719-404-49	DIODE	MA111	(TR99/TR590)
D334	8-719-420-14	DIODE	MA8082-M	
D335	8-719-404-49	DIODE	MA111	
D480	8-719-033-72	DIODE	CL-181UR-C-TS	
D481	8-719-404-49	DIODE	MA111	(TR78/TR88/TR98)

< FILTER >

Ref. No.	Part No.	Description
FL300	1-411-527-21	COIL, OSC

< IC >

Ref. No.	Part No.	Description	
IC301	8-759-298-10	IC	S-8423NFS-T2
IC302	8-759-059-05	IC	TL1596CPW
IC303	8-759-393-53	IC	MB89082PFV-G-109-BND

< JACK >

Ref. No.	Part No.	Description	Remarks
J480	1-565-276-21	JACK, ULTRA SMALL 1P (LANC)	
J481	1-569-809-11	JACK (SMALL TYPE) (HEADPHONE)	(TR78/TR88/TR98/TR99/TR590)

< COIL >

Ref. No.	Part No.	Description	Remarks
L300	1-414-078-11	INDUCTOR 10uH	
L301	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR78/TR88/TR98/TR99/TR590)
L302	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR78/TR88/TR98/TR99/TR590)

< IC LINK >

Ref. No.	Part No.	Description
⚠PS301	1-576-122-21	LINK, IC 400mA

< TRANSISTOR >

Ref. No.	Part No.	Description		Remarks
Q300	8-729-402-84	TRANSISTOR	XN4601	(TR78/TR88/TR98/TR99/TR590)
Q301	8-729-823-16	TRANSISTOR	2SC4555-5.6.7	(EXCEPT TR514/TR614)
Q302	8-729-032-00	TRANSISTOR	2SJ381-TD	(EXCEPT TR514/TR614)
Q303	8-729-402-81	TRANSISTOR	XN4501	(EXCEPT TR514/TR614)
Q304	8-729-015-76	TRANSISTOR	UN5211	(EXCEPT TR514/TR614)
Q305	8-729-015-76	TRANSISTOR	UN5211	
Q309	8-729-402-42	TRANSISTOR	UN5213	(TR99/TR590)
Q310	8-729-028-26	TRANSISTOR	2SK1829(TE85L)	(TR78/TR88/TR98)
Q311	8-729-807-86	TRANSISTOR	2SB1295-UL5	(TR99/TR590)

< RESISTOR >

Ref. No.	Part No.	Description			
R300	1-216-853-11	METAL CHIP	470K	5%	1/16W
R301	1-216-853-11	METAL CHIP	470K	5%	1/16W
R303	1-216-853-11	METAL CHIP	470K	5%	1/16W
R304	1-216-817-11	METAL CHIP	470	5%	1/16W
R305	1-216-864-11	METAL CHIP	0	5%	1/16W

Note:	Note:
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

Ref. No.	Part No.	Description				Remarks
R306	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R307	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R308	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R309	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R310	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R311	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R312	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R313	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R314	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R315	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R316	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R317	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R318	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R319	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R320	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R321	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R322	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R323	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R324	1-216-864-11	METAL CHIP	0	5%	1/16W	
R325	1-216-864-11	METAL CHIP	0	5%	1/16W	
R326	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R327	1-216-864-11	METAL CHIP	0	5%	1/16W	
R328	1-216-848-11	METAL CHIP	180K	5%	1/16W	(TR78/TR88/TR98/TR99/TR590)
R329	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TR78/TR88/TR98/TR99/TR590)
R330	1-216-845-11	METAL CHIP	100K	5%	1/16W	(TR78/TR88/TR98/TR99/TR590)
R331	1-216-864-11	METAL CHIP	0	5%	1/16W	
R332	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR514/TR614)
R333	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R334	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R335	1-216-817-11	METAL CHIP	470	5%	1/16W	
R336	1-216-833-11	METAL CHIP	10K	5%	1/16W	(EXCEPT TR514/TR614)
R337	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(EXCEPT TR514/TR614)
R338	1-216-857-11	METAL CHIP	1M	5%	1/16W	(EXCEPT TR514/TR614)
R339	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR590)
R340	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR590)
R341	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR78/TR88/TR98)
R342	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R343	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R345	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R346	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R347	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR99/TR590)
R348	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR99/TR590)
R350	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R351	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R352	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R353	1-216-864-11	METAL CHIP	0	5%	1/16W	
R354	1-216-864-11	METAL CHIP	0	5%	1/16W	

Ref. No.	Part No.	Description				Remarks
R355	1-216-864-11	METAL CHIP	0	5%	1/16W	
R356	1-216-864-11	METAL CHIP	0	5%	1/16W	
R357	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R358	1-216-864-11	METAL CHIP	0	5%	1/16W	
R359	1-216-809-11	METAL CHIP	100	5%	1/16W	
R360	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR88/TR98/TR99/TR814)
R361	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR88/TR98/TR99/TR814)
R362	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R363	1-216-837-11	METAL CHIP	22K	5%	1/16W	(TR78/TR88/TR98)
R364	1-216-864-11	METAL CHIP	0	5%	1/16W	
R365	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR590)
R366	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R367	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R368	1-216-809-11	METAL CHIP	100	5%	1/16W	
R370	1-216-864-11	METAL CHIP	0	5%	1/16W	
R371	1-216-864-11	METAL CHIP	0	5%	1/16W	
R372	1-216-864-11	METAL CHIP	0	5%	1/16W	
R373	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R374	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R375	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R376	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R377	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R378	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R379	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R380	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R381	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R384	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R386	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R387	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R389	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R390	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R392	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R393	1-216-809-11	METAL CHIP	100	5%	1/16W	
R394	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W	
R395	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TR88/TR98/TR99/TR590/TR814)
R396	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R397	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R398	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R399	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R480	1-216-182-00	METAL GLAZE	220	5%	1/8W	(TR99/TR590)
R482	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R483	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R484	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R485	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR99/TR590)
R487	1-216-182-00	METAL GLAZE	220	5%	1/8W	(TR99/TR590)
R490	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R491	1-414-385-11	INDUCTOR, FERRITE BEAD				(TR78/TR88/TR98/TR99/TR590)
R492	1-414-385-11	INDUCTOR, FERRITE BEAD				(TR78/TR88/TR98/TR99/TR590)

Ref. No.	Part No.	Description	Remarks
R493	1-414-385-11	INDUCTOR, FERRITE BEAD	(TR78/TR88/TR98/TR99/TR590)
R494	1-216-864-11	METAL CHIP 0 5% 1/16W	
R495	1-216-864-11	METAL CHIP 0 5% 1/16W	
R496	1-216-797-11	METAL CHIP 10 5% 1/16W	
R497	1-216-864-11	METAL CHIP 0 5% 1/16W	
R499	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R500	1-216-864-11	METAL CHIP 0 5% 1/16W	
R501	1-216-182-00	METAL GLAZE 220 5% 1/8W	(TR99/TR590)
R502	1-216-182-00	METAL GLAZE 220 5% 1/8W	(TR99/TR590)
R503	1-216-182-00	METAL GLAZE 220 5% 1/8W	(TR99/TR590)
R504	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)

< SWITCH >

Ref. No.	Part No.	Description	Remarks
S300	1-553-977-71	SWITCH, SLIDE(EXCEPT TR514/TR614)(ZOOM)	
S301	1-762-333-21	SWITCH, TACTILE (TITLE)	
S480	1-762-333-21	SWITCH, TACTILE (DATE(+))	
S481	1-762-333-21	SWITCH, TACTILE (TIME(NEXT))	
S482	1-762-333-21	SWITCH, TACTILE (COUNTER RESET)	
S483	1-553-977-71	SWITCH, SLIDE (REC MODE)	
S484	1-762-333-21	SWITCH, TACTILE (BACK LIGHT)	
S485	1-570-113-11	SWITCH, SLIDE (START/STOP MODE)	
S486	1-570-397-11	SWITCH, SLIDE (TR88/TR98/TR99/TR814) (16:9 WIDE/STEADY SHOT)	
S487	1-553-977-71	SWITCH, SLIDE (COMMANDER)	
S488	1-553-977-71	SWITCH, SLIDE (BEEP)	
S489	1-762-442-21	SWITCH, ROTARY (PROGRAM AE)	

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X302	1-579-463-11	VIBRATOR, CRYSTAL 32KHz	
XTL301	1-579-369-21	VIBRATOR 10MHz	

A-7092-619-A DD-80 BOARD, COMPLETE
****
(TR99/TR590/TR614/TR714)
A-7092-839-A DD-80 BOARD, COMPLETE (TR98)
****
A-7092-575-A DD-80 BOARD, COMPLETE (TR514/TR814)
****
A-7092-856-A DD-80 BOARD, COMPLETE (TR78/TR88)
****
(Ref.No.1,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C001	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C002	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C003	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C004	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C005	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C006	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR78/TR88/TR514/TR814)
C006	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	(TR98/TR99/TR590/TR614/TR714)
C007	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C008	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C009	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C010	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C011	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C012	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C013	1-128-065-11	ELECT 68uF 20% 10V	
C014	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C016	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C018	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C019	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C022	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C023	1-128-004-11	ELECT CHIP 10uF 20% 16V	(TR98/TR99/TR590/TR614/TR714)
C024	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C025	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C026	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C027	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C028	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C029	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C030	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C031	1-115-170-11	TANTALUM 4.7uF 20% 10V	
C032	1-115-170-11	TANTALUM 4.7uF 20% 10V	
C033	1-115-169-11	TANTALUM 10uF 20% 6.3V	
C034	1-115-170-11	TANTALUM 4.7uF 20% 10V	
C035	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C036	1-115-169-11	TANTALUM 10uF 20% 6.3V	
C037	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	(EXCEPT TR98)
C037	1-164-505-11	CERAMIC CHIP 2.2uF 16V	(TR98)
C038	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C039	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C040	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C041	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C042	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C043	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C044	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C045	1-128-006-11	ELECT CHIP 4.7uF 20% 25V	
C046	1-128-006-11	ELECT CHIP 4.7uF 20% 25V	
C047	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C048	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C049	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	(TR78/TR88/TR98)

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN002	1-770-622-21	PIN, CONNECTOR 5P	(TR78/TR88/TR98)
* CN003	1-691-935-11	CONNECTOR, BOARD TO BOARD 38P	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D001	8-719-989-33	DIODE FC806	
D002	8-719-420-14	DIODE MA8082-M	
D003	8-719-027-76	DIODE 1SS357-TPH3	(TR78/TR88/TR98)
D004	8-719-404-49	DIODE MA111	(TR78/TR88/TR98)

< FUSE >

Ref. No.	Part No.	Description	Remarks
⚠F001	1-576-213-11	FUSE, CHIP 1.6A	(TR78/TR88/TR98)
⚠F002	1-576-213-11	FUSE, CHIP 1.6A	
⚠F003	1-576-213-11	FUSE, CHIP 1.6A	
⚠F004	1-576-213-11	FUSE, CHIP 1.6A	

< IC >

Ref. No.	Part No.	Description	Remarks
IC001	8-759-350-29	IC SN104213PM-T6	

< JACK >

Ref. No.	Part No.	Description	Remarks
J001	1-537-241-11	TERMINAL BOARD (BATTERY)	

< COIL >

Ref. No.	Part No.	Description	Remarks
L001	1-411-460-21	COEL, CHOKE 10uH	(TR98/TR99/TR590/TR614/TR714)
L002	1-411-460-21	COEL, CHOKE 10uH	
L003	1-411-460-21	COEL, CHOKE 10uH	
L004	1-411-460-21	COEL, CHOKE 10uH	
L005	1-409-556-11	COIL, CHOKE 47uH	
L006	1-409-556-11	COIL, CHOKE 47uH	
L007	1-424-674-11	COIL, CHOKE 22uH	
L008	1-409-556-11	COIL, CHOKE 47uH	
L009	1-424-674-11	COIL, CHOKE 22uH	
L010	1-412-056-11	INDUCTOR CHIP 4.7uH	
L011	1-412-056-11	INDUCTOR CHIP 4.7uH	
L012	1-412-056-11	INDUCTOR CHIP 4.7uH	
L013	1-412-056-11	INDUCTOR CHIP 4.7uH	
L014	1-412-066-21	INDUCTOR CHIP 220uH	(TR78/TR88/TR514/TR814)
L014	1-412-064-11	INDUCTOR CHIP 100uH	(TR98/TR99/TR590/TR614/TR714)
L015	1-412-066-21	INDUCTOR CHIP 220uH	(TR78/TR88/TR514/TR814)
L015	1-412-064-11	INDUCTOR CHIP 100uH	(TR98/TR99/TR590/TR614/TR714)
L016	1-412-056-11	INDUCTOR CHIP 4.7uH	
L017	1-412-056-11	INDUCTOR CHIP 4.7uH	
L018	1-412-056-11	INDUCTOR CHIP 4.7uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q001	8-729-033-14	TRANSISTOR FP107-TL	
Q002	8-729-033-14	TRANSISTOR FP107-TL	
Q003	8-729-804-41	TRANSISTOR 2SB1122-S	
Q004	8-729-033-14	TRANSISTOR FP107-TL	
Q005	8-729-033-14	TRANSISTOR FP107-TL	
Q006	8-729-033-14	TRANSISTOR FP107-TL	
Q007	8-729-030-75	TRANSISTOR 2SK2316-TD	
Q008	8-729-402-42	TRANSISTOR UN5213	
Q009	8-729-402-33	TRANSISTOR 2SD1819A	(TR78/TR88/TR98)
Q010	8-729-030-75	TRANSISTOR 2SK2316-TD	(TR78/TR88/TR98)
Q011	8-729-015-74	TRANSISTOR UN5111-TX	(TR78/TR88/TR98)
Q012	8-729-030-75	TRANSISTOR 2SK2316-TD	(TR78/TR88/TR98)
Q013	8-729-028-26	TRANSISTOR 2SK1829(TE85L)	(TR78/TR88/TR98)

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R001	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R002	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R003	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R004	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR514/TR814)
R004	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TR98/TR99/TR590/TR614/TR714)
R005	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R006	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R007	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R008	1-216-813-11	METAL CHIP 220 5% 1/16W	
R009	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R010	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R014	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R015	1-216-819-11	METAL CHIP 680 5% 1/16W	
R016	1-216-864-11	METAL CHIP 0 5% 1/16W	
R017	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R018	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R019	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R020	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R021	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R022	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R023	1-216-797-11	METAL CHIP 10 5% 1/16W	
R024	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R025	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R026	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR78/TR88/TR514/TR814)
R027	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R028	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR78/TR88/TR98)
R029	1-216-856-11	METAL CHIP 820K 5% 1/16W	(TR78/TR88/TR98)
R031	1-216-848-11	METAL CHIP 180K 5% 1/16W	(TR78/TR88/TR98)
R033	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R034	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR78/TR88/TR98)
R036	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR78/TR88/TR98)

Note: The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

< SWITCH >

Ref. No.	Part No.	Description	Remarks
S001	1-572-688-11	SWITCH, PUSH (1 KEY)(START/STOP)	
S002	1-572-467-21	SWITCH, PUSH (1 KEY)(EJECT)	
S003	1-762-441-11	SWITCH, ROTARY (ZOOM SW)	
S004	1-572-688-11	SWITCH, PUSH (1 KEY)(STANDBY)	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remarks
T001	1-429-164-21	TRANSFORMER, DC/DC CONVERTER	(TR78/TR88/TR514/TR814)
T001	1-429-225-21	TRANSFORMER, DC/DC CONVERTER	(TR98/TR99/TR590/TR614/TR714)

FP-249 BOARD
****

(Ref.No.5,000 Series)

Ref. No.	Part No.	Description	Remarks
	1-658-214-11	FP-356 FLEXIBLE BOARD	
	3-965-551-01	HOLDER (S), SENSOR	
	3-965-552-01	HOLDER (T), SENSOR	

< HOLE ELEMENT >

Ref. No.	Part No.	Description	Remarks
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F	

< SWITCH >

Ref. No.	Part No.	Description	Remarks
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	

1-658-213-11 FP-355 FLEXIBLE BOARD
****

(Ref.No.5,000 Series)

< DIODE >

Ref. No.	Part No.	Description	Remarks
D001	8-719-988-42	DIODE GL453S	

A-7072-501-A JK-145 BOARD, COMPLETE
****

(TR514/TR614/TR714/TR814)

A-7072-651-A JK-145 BOARD, COMPLETE

(TR78/TR88/TR98)

****

A-7072-600-A JK-145 BOARD, COMPLETE (TR99/TR590)
****

(Ref.No.2,000 Series)

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN060	1-766-342-21	CONNECTOR, FFC/FPC 12P	
* CN061	1-770-619-11	PIN, CONNECTOR 2P	(TR78/TR88/TR98)

< DIODE >

Ref. No.	Part No.	Description	Remarks
D060	8-719-027-50	DIODE MA142WK	
D061	8-719-404-49	DIODE MA111	
D062	8-719-052-33	DIODE MAZV082DFL	(TR78/TR88/TR98/TR99/TR590)
D063	8-719-052-33	DIODE MAZV082DFL	
D064	8-719-420-14	DIODE MA8082-M	
D069	8-719-052-33	DIODE MAZV082DFL	

< JACK >

Ref. No.	Part No.	Description	Remarks
J060	1-537-415-11	TERMINAL BOARD (VIDEO/AUDIO)	(TR78/TR88/TR98/TR99/TR590)
J060	1-537-726-11	TERMINAL BOARD (VIDEO AUDIO)	(TR514/TR614/TR714/TR814)

< COIL >

Ref. No.	Part No.	Description	Remarks
L061	1-216-295-91	CONDUCTOR, CHIP (2012)	
L062	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR78/TR88/TR98/TR99/TR590)

< SWITCH >

Ref. No.	Part No.	Description	Remarks
S061	1-762-648-21	SWITCH, SLIDE (LIGHT)	(TR78/TR88/TR98)

A-7092-688-A LB-44 BOARD, COMPLETE (TR614)
****

(Ref.No.7,000 Series)

< FLUORESCENT TUBE >

Ref. No.	Part No.	Description	Remarks
⚠BL801	1-517-414-21	FLUORESCENT TUBE (0.55 INCH)	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN801	1-573-812-11	CONNECTOR, BOARD TO BOARD 12P	

A-7092-696-A LB-46 BOARD, COMPLETE
****

(TR98/TR99/TR590/TR714)

(Ref.No.4,000 Series)

< FLUORESCENT TUBE >

Ref. No.	Part No.	Description	Remarks
⚠BL801	1-517-325-11	LANP, FLUORESCENT (0.55 INCH)	

Note:	**Note:**
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

Ref. No.	Part No.	Description	Remarks
		< CAPACITOR >	
C801	1-104-917-11	TANTAL. CHIP 15uF 20% 20V	
C802	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C803	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C804	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C805	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C806	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
		< CONNECTOR >	
* CN801	1-573-333-21	CONNECTOR, BOARD TO BOARD 10P	
		< DIODE >	
D802	8-719-802-36	DIODE 1SS250	
		< COIL >	
L801	1-412-033-11	INDUCTOR CHIP 220uH	
L802	1-412-029-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q801	8-729-024-60	TRANSISTOR MTD6N15T4	
		< RESISTOR >	
R801	1-216-809-11	METAL CHIP 100 5% 1/16W	
R802	1-216-839-11	METAL CHIP 33K 5% 1/16W	
		< TRANSFORMER >	
⚠T801	1-426-848-51	TRANSFORMER, INVERTER	

Ref. No.	Part No.	Description	Remarks
	A-7072-602-A	MA-265 BOARD, COMPLETE ************************	(TR78/TR88/TR98/TR99/TR590)
	A-7072-506-A	MA-265 BOARD, COMPLETE ************************	(TR514/TR614/TR714/TR814) (Ref.No.2,000 Series)
		< CAPACITOR >	
C953	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	(TR78/TR88/TR98/TR99/TR590)
C954	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR78/TR88/TR98/TR99/TR590)
C955	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	(TR78/TR88/TR98/TR99/TR590)
C957	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TR78/TR88/TR98/TR99/TR590)
C958	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C959	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR78/TR88/TR98/TR99/TR590)
C960	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TR78/TR88/TR98/TR99/TR590)
C961	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C962	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C963	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TR78/TR88/TR98/TR99/TR590)
C964	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C969	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C970	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C972	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR78/TR88/TR98/TR99/TR590)
C973	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TR78/TR88/TR98/TR99/TR590)
C974	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C975	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	(TR78/TR88/TR98/TR99/TR590)
C977	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	(TR78/TR88/TR98/TR99/TR590)
C978	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C980	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR514/TR614/TR714/TR814)
C982	1-165-128-11	CERAMIC CHIP 0.22uF 16V	(TR514/TR614/TR714/TR814)
C983	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TR514/TR614/TR714/TR814)
C984	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR514/TR614/TR714/TR814)
C985	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR514/TR614/TR714/TR814)
C986	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR514/TR614/TR714/TR814)
C988	1-164-346-11	CERAMIC CHIP 1uF 16V	(TR514/TR614/TR714/TR814)
C990	1-124-779-00	ELECT CHIP 10uF 20% 16V	(TR78/TR88/TR98/TR99/TR590)
C990	1-126-607-11	ELECT CHIP 47uF 20% 4V	(TR514/TR614/TR714/TR814)
C991	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TR514/TR614/TR714/TR814)
C993	1-124-779-00	ELECT CHIP 10uF 20% 16V	
C995	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C996	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TR78/TR88/TR98/TR99/TR590)
C998	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	(TR78/TR88/TR98/TR99/TR590)
C999	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	(TR78/TR88/TR98/TR99/TR590)
		< CONNECTOR >	
CN951	1-764-707-21	CONNECTOR, FFC/FPC (LIF) 8P	
CN952	1-580-055-21	PIN, CONNECTOR 2P	(TR78/TR88/TR98/TR99/TR590)
CN953	1-580-055-21	PIN, CONNECTOR 2P	

Note:	Note:
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

Ref. No.	Part No.	Description	Remarks
		< DIODE >	
D951	8-719-404-49	DIODE MA111	
D952	8-719-404-49	DIODE MA111	
		< IC >	
IC951	8-759-380-80	IC LA7473V-TLM	(TR78/TR88/TR98/TR99/TR590)
IC952	8-759-339-63	IC NJM2118V-TE2	(TR514/TR614/TR714/TR814)
IC953	8-749-012-17	IC RS-140-T	
		< JACK >	
J951	1-691-737-11	JACK (SMALL TYPE) (MIC)	(TR78/TR88/TR98/TR99/TR590)
J951	1-568-027-11	JACK, SMALL TYPE 1P (MIC)	(TR514/TR614/TR714/TR814)
		< COIL >	
L951	1-414-235-11	INDUCTOR, FERRITE BEAD	(TR78/TR88/TR98/TR99/TR590)
L952	1-414-235-11	INDUCTOR, FERRITE BEAD	
L953	1-414-235-11	INDUCTOR, FERRITE BEAD	
		< TRANSISTOR >	
Q951	8-729-420-24	TRANSISTOR 2SB1218A-QRS	(TR514/TR614/TR714/TR814)
		< RESISTOR >	
R952	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R954	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R957	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R958	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R959	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R961	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R962	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R963	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R964	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R965	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R967	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R968	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R969	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R970	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R972	1-216-864-11	METAL CHIP 0 5% 1/16W	
R973	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R975	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R976	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R978	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	(TR514/TR614/TR714/TR814)
R979	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR514/TR614/TR714/TR814)
R980	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TR514/TR614/TR714/TR814)
R981	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR514/TR614/TR714/TR814)
R982	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR514/TR614/TR714/TR814)
R983	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR514/TR614/TR714/TR814)
R986	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R989	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R990	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R991	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R992	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R993	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R995	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R996	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R997	1-216-809-11	METAL CHIP 100 5% 1/16W	(TR514/TR614/TR714/TR814)

A-7072-507-A PW-113 BOARD, COMPLETE
****
(TR78/TR88/TR98/TR514/TR614/TR714/TR814)
A-7072-603-A PW-113 BOARD, COMPLETE (TR99/TR590)
****
(Ref.No.2,000 Series)

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
CN583	1-764-705-11	CONNECTOR, FFC/FPC (LIF) 6P	
CN584	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P	(TR99/TR590)
		< SWITCH >	
S490	1-572-467-21	SWITCH, PUSH (1 KEY) (CAMERA)	
S491	1-572-467-21	SWITCH, PUSH (1 KEY) (PLAYER)	

Ref. No.	Part No.	Description	Remarks
	A-7072-504-A	TZ-5 BOARD,COMPLETE	
		*********************	
			(TR99/TR590/TR814)
	A-7072-673-A	TZ-5 BOARD, COMPLETE (TR78)	
		*********************	
	A-7072-591-A	TZ-5 BOARD, COMPLETE (TR714)	
		*********************	
	A-7072-650-A	TZ-5 BOARD, COMPLETE (TR88/TR98)	
		*********************	
			(Ref.No.5,000 Series)
	3-968-925-01	TERMINAL, LAMP (TR78/TR88/TR98)	
		< CAPACITOR >	
C650	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR88/TR98/TR99/TR590/TR814)
C651	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TR88/TR98/TR99/TR590/TR814)
C652	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	(TR88/TR98/TR99/TR590/TR814)
C653	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	(TR88/TR98/TR99/TR590/TR814)
C654	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	(TR88/TR98/TR99/TR590/TR814)
C655	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TR88/TR98/TR99/TR590/TR814)
C656	1-164-299-11	CERAMIC CHIP 0.22uF 10% 25V	(TR88/TR98/TR99/TR590/TR814)
C657	1-164-299-11	CERAMIC CHIP 0.22uF 10% 25V	(TR88/TR98/TR99/TR590/TR814)
C658	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TR88/TR98/TR99/TR590/TR814)
C659	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TR88/TR98/TR99/TR590/TR814)
C660	1-128-257-21	ELECT CHIP 33uF 20% 10V	(TR88/TR98/TR99/TR590/TR814)
C661	1-128-257-21	ELECT CHIP 33uF 20% 10V	(TR88/TR98/TR99/TR590/TR814)
C663	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TR88/TR98/TR99/TR590/TR814)
C664	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TR88/TR98/TR99/TR590/TR814)
C665	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	(TR88/TR98/TR99/TR590/TR814)
C666	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	(TR88/TR98/TR99/TR590/TR814)
C668	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	(TR88/TR98/TR99/TR590/TR814)
C669	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR88/TR98/TR99/TR590/TR814)
C672	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C673	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C674	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C675	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
		< CONNECTOR >	
CN650	1-764-526-11	CONNECTOR, FFC/FPC (ZIF) 18P	
* CN651	1-770-619-11	PIN, CONNECTOR 2P (TR78/TR88/TR98)	

Ref. No.	Part No.	Description	Remarks
		< IC >	
IC650	8-759-080-34	IC TA75W01FU	(TR88/TR98/TR99/TR590/TR814)
IC651	8-759-388-63	IC NJU7064V(TE2)	(TR88/TR98/TR99/TR590/TR814)
IC652	8-759-234-77	IC TC4S66F	(TR88/TR98/TR99/TR590/TR814)
IC653	8-759-234-77	IC TC4S66F	(TR88/TR98/TR99/TR590/TR814)
IC655	8-752-855-05	IC CXP81120-024R	
		< COIL >	
L650	1-414-078-11	INDUCTOR 10uH	(TR88/TR98/TR99/TR590/TR814)
L652	1-412-058-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q650	8-729-402-42	TRANSISTOR UN5213	(TR88/TR98/TR99/TR590/TR814)
		< RESISTOR >	
R650	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R651	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R652	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R653	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R654	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R655	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R656	1-216-803-11	METAL CHIP 33 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R658	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R659	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R660	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R661	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R662	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R663	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R664	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R665	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R666	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R667	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R668	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R669	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)

Ref. No.	Part No.	Description	Remarks
R670	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R672	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R673	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R674	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R675	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R676	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R682	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R683	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	(TR78/TR88/TR98/TR99/TR590/TR814)
R683	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR714)
R684	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R685	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	(TR78/TR88/TR98/TR99/TR590/TR814)
R685	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR714)
R688	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R689	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR88/TR98/TR99/TR590/TR814)
R690	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR78/TR88/TR98)
R691	1-216-295-91	CONDUCTOR, CHIP (2012)	(TR78/TR88/TR98)

< SENSOR >

Ref. No.	Part No.	Description	Remarks
SE650	1-810-725-81	SENSOR, ANGULAR VELOCITY	(TR88/TR98/TR99/TR590/TR814)
SE651	1-810-725-71	SENSOR, ANGULAR VELOCITY	(TR88/TR98/TR99/TR590/TR814)

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X650	1-579-553-11	VIBRATOR 12MHz	

A-7092-790-A VC-167 BOARD, COMPLETE (TR99/TR590)
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A-7092-574-A VC-167 BOARD, COMPLETE (TR514)
****
A-7092-618-A VC-167 BOARD, COMPLETE (TR614)
****
A-7092-780-A VC-167 BOARD, COMPLETE (TR814)
****
A-7092-838-A VC-167 BOARD, COMPLETE (TR98)
****
A-7092-782-A VC-167 BOARD, COMPLETE (TR714)
****
A-7092-855-A VC-167 BOARD, COMPLETE (TR78/TR88)
****

(Ref.No.1,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C061	1-104-852-11	TANTAL. CHIP 22uF 20% 6.3V	
C069	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR98/TR99/TR590 /TR614/TR714)
C072	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C073	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C075	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C076	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TR78/TR88/TR514/TR814)
C076	1-109-996-11	CERAMIC CHIP 1uF 6.3V	(TR98/TR99/TR590/TR614/TR714)
C077	1-164-346-11	CERAMIC CHIP 1uF 16V	
C078	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C101	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C102	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C103	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C104	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C106	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C107	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C108	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C109	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C110	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C111	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C112	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C113	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C114	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C115	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C116	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C117	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C118	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C119	1-162-959-11	CERAMIC CHIP 330PF 5% 50V	
C120	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C121	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C122	1-162-959-11	CERAMIC CHIP 330PF 5% 50V	
C123	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C124	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C125	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C127	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C128	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C129	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C130	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C134	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C135	1-104-852-11	TANTAL. CHIP 22uF 20% 6.3V	
C136	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C137	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C138	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C139	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C140	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C141	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C142	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C143	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C148	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C149	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C150	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C152	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C153	1-162-916-11	CERAMIC CHIP 12PF 5% 50V	
C154	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C156	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C157	1-162-921-11	CERAMIC CHIP 33PF 5% 50V	
C160	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	
C162	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description			Remarks
C163	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C164	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C165	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C166	1-162-958-11	CERAMIC CHIP	270PF	5%	50V
C167	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
			(TR78/TR88/TR98/TR99/TR590)		
C167	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
			(TR514/TR614/TR714/TR814)		
C168	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C169	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C170	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C171	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C202	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C203	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
			(TR78/TR514/TR614/TR714)		
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C206	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C208	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C209	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C210	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C211	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C212	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C213	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C214	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C215	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C216	1-126-246-11	ELECT CHIP	220uF	20%	4V
C217	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C218	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C219	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C221	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C223	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C224	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C225	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V
C226	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C227	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C228	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
			(TR88/TR98/TR99/TR590/TR814)		
C229	1-162-959-11	CERAMIC CHIP	330PF	5%	50V
C230	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C231	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C232	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C233	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C234	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C235	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C236	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C237	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C238	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C240	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C242	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C243	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C244	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C245	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C246	1-135-073-00	TANTALUM CHIP	0.33uF	10%	35V
C249	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C252	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C254	1-162-975-11	CERAMIC CHIP	24PF	5%	50V
C256	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C257	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C259	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C260	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C263	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C265	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C266	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C267	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C270	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C271	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C400	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C401	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C402	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C403	1-162-912-11	CERAMIC CHIP	7PF	0.5PF	50V
C404	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C405	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C406	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C407	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C408	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C414	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C417	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C418	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C419	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C420	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C421	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C423	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C424	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C425	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C426	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C427	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C428	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C429	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C430	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C431	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C432	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C433	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C434	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C435	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C436	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C437	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C438	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C439	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			Remarks
C441	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C442	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C443	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C444	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C445	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C446	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C447	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C448	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C449	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C450	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C451	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C452	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C453	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C456	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C458	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C502	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C505	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
					(TR78/TR88/TR98/TR99/TR590)
C506	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
					(TR78/TR88/TR98/TR99/TR590)
C507	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
					(TR78/TR88/TR98/TR99/TR590)
C511	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
					(TR78/TR88/TR98/TR99/TR590)
C511	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
					(TR514/TR614/TR714/TR814)
C512	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C515	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C516	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
					(TR78/TR88/TR98/TR99/TR590)
C516	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
					(TR514/TR614/TR714/TR814)
C517	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
					(TR78/TR88/TR98/TR99/TR590)
C518	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
					(TR514/TR614/TR714/TR814)
C520	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C521	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C522	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C523	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C525	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
					(TR78/TR88/TR98/TR99/TR590)
C526	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C528	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
					(TR78/TR88/TR98/TR99/TR590)
C529	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C530	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C531	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
					(TR78/TR88/TR98/TR99/TR590)
C531	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
					(TR514/TR614/TR714/TR814)
C532	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
					(TR78/TR88/TR98/TR99/TR590)
C532	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
					(TR514/TR614/TR714/TR814)
C533	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C534	1-164-232-11	CERAMIC CHIP	0.01uF		50V
					(TR78/TR88/TR98/TR99/TR590)
C535	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C537	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C538	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
					(TR78/TR88/TR98/TR99/TR590)
C540	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
					(TR78/TR88/TR98/TR99/TR590)
C542	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C543	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C544	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
					(TR78/TR88/TR98/TR99/TR590)
C546	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
					(TR78/TR88/TR98/TR99/TR590)
C546	1-126-209-11	ELECT	100uF	20%	4V
					(TR514/TR614/TR714/TR814)
C548	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
					(TR78/TR88/TR98/TR99/TR590)
C548	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
					(TR514/TR614/TR714/TR814)
C550	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C553	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
					(TR78/TR88/TR98/TR99/TR590)
C556	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C557	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C558	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C561	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C563	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
					(TR78/TR88/TR98/TR99/TR590)
C564	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
					(TR78/TR88/TR98/TR99/TR590)
C565	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
					(TR78/TR88/TR98/TR99/TR590)
C602	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C603	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C604	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C605	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C606	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C607	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C608	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C609	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C610	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C611	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C612	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C613	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C614	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C615	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C616	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C618	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C619	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C620	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C701	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C702	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C703	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C704	1-164-346-11	CERAMIC CHIP	1uF		16V
C706	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C707	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C708	1-164-232-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C710	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C711	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C712	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C713	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C714	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C715	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C717	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C718	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C719	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C720	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C722	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C724	1-162-924-11	CERAMIC CHIP	56PF	5%	50V
C725	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C726	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C727	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C728	1-135-091-91	TANTAL. CHIP	1uF	20%	16V
C729	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C730	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C731	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C732	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C734	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C735	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C736	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C745	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C746	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C748	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		(TR78/TR88/TR98/TR99/TR590/TR714/TR814)			
C749	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C750	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C751	1-164-346-11	CERAMIC CHIP	1uF		16V
C754	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
		(TR78/TR98/TR99/TR590/TR714/TR814)			
C755	1-164-346-11	CERAMIC CHIP	1uF		16V
C757	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C758	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C759	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C760	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
			(EXCEPT TR514/TR614)		
C761	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
			(EXCEPT TR514/TR614)		
C764	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C765	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C772	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C773	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		(TR78/TR98/TR99/TR590/TR714/TR814)			
C774	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		(TR78/TR98/TR99/TR590/TR714/TR814)			
C775	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		(TR78/TR98/TR99/TR590/TR714/TR814)			

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN060	1-691-350-21	CONNECTOR, FFC/FPC (ZIF) 12P	
CN101	1-766-341-21	CONNECTOR, FFC/FPC 11P	
CN102	1-764-708-21	CONNECTOR, FFC/FPC (LIF) 9P	
CN300	1-774-054-21	CONNECTOR, FFC/FPC (ZIF) 45P	
* CN301	1-691-931-11	CONNECTOR, BOARD TO BOARD 38P	
CN400	1-766-340-21	CONNECTOR, FFC/FPC 10P	
CN401	1-766-342-21	CONNECTOR, FFC/FPC 12P	
CN402	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN403	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN501	1-764-707-21	CONNECTOR, FFC/FPC (LIF) 8P	
CN601	1-764-529-11	CONNECTOR, FFC/FPC (ZIF) 22P	
CN701	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P	
CN702	1-766-348-21	CONNECTOR, FFC/FPC 18P	
			(EXCEPT TR514/TR614)

< DIODE >

Ref. No.	Part No.	Description		Remarks
D101	8-719-404-49	DIODE	MA111	
D102	8-719-820-41	DIODE	1SS302	
D103	8-719-027-50	DIODE	MA142WK	
D201	8-719-027-50	DIODE	MA142WK	
D203	8-719-027-48	DIODE	MA142WA	
D301	8-719-404-49	DIODE	MA111 (TR99/TR590)	
D302	8-719-404-49	DIODE	MA111	
D309	8-719-037-73	DIODE	CL-181Y-C (TR99/TR590)	
D310	8-719-037-73	DIODE	CL-181Y-C (TR99/TR590)	
D311	8-719-037-73	DIODE	CL-181Y-C (TR99/TR590)	
D312	8-719-037-73	DIODE	CL-181Y-C (TR99/TR590)	
D313	8-719-037-73	DIODE	CL-181Y-C (TR99/TR590)	
D317	8-719-037-73	DIODE	CL-181Y-C (TR99/TR590)	
D318	8-719-037-73	DIODE	CL-181Y-C (TR99/TR590)	
D319	8-719-033-13	DIODE	CL-170Y-CD-T	
D701	8-719-027-48	DIODE	MA142WA	
D702	8-719-404-49	DIODE	MA111	
D703	8-719-404-49	DIODE	MA111	
D706	8-713-102-28	DIODE	1T379-04-T8A	

< IC >

Ref. No.	Part No.	Description		Remarks
IC061	8-759-290-12	IC	M62370GP-650D	
IC101	8-752-071-48	IC	CXA2002R	
IC201	8-752-071-47	IC	CXA2001R	
IC202	8-759-035-90	IC	SC7S02F	
IC204	8-759-234-20	IC	TC7S08F	
IC400	8-752-870-27	IC	CXP87460-008R	
IC401	8-759-278-57	IC	AK6420HF-E2	
IC402	8-752-070-46	IC	CXA1814Q	
IC403	8-759-327-67	IC	LB1950V-TLM	
IC404	8-759-327-61	IC	LB8112V-TLM	
IC405	8-759-234-20	IC	TC7S08F	
IC501	8-759-368-08	IC	AN2980FH-EB	
				(TR78/TR88/TR98/TR99/TR590)
IC501	8-759-338-93	IC	AN3996FHP-EB	
				(TR514/TR614/TR714/TR814)
IC601	8-759-337-40	IC	NJM2904V(TE2)	
IC602	8-759-337-41	IC	NJM2902V(TE2)	
IC603	8-759-247-07	IC	MPC17A34VMEL	
IC604	8-752-365-65	IC	CXD2126N	
IC701	8-752-372-14	IC	CXD1267AN	

Ref. No.	Part No.	Description	Remarks
IC702	8-752-374-25	IC CXD2415R	
IC703	8-752-073-11	IC CXA2006Q-T4	
IC704	8-759-386-91	IC HD49321FEB	(TR78/TR88/TR98/TR99/TR590/TR714/TR814)
IC704	8-752-375-80	IC CXD2312R-T4	(TR88/TR514/TR614)
IC705	8-752-374-02	IC CXD2418R	
IC706	8-759-349-58	IC CXD8562R-T6	
IC707	8-759-297-76	IC CXD2152AREL	(EXCEPT TR514/TR614)
IC708	8-759-337-40	IC NJM2904V(TE2)	
IC710	8-759-198-34	IC TA75S558F	
		< COIL >	
L061	1-412-064-11	INDUCTOR CHIP 100uH	
L062	1-414-078-11	INDUCTOR 10uH	
L063	1-412-052-21	INDUCTOR CHIP 1uH	
L101	1-412-066-21	INDUCTOR CHIP 220uH	
L102	1-412-066-21	INDUCTOR CHIP 220uH	
L103	1-412-066-21	INDUCTOR CHIP 220uH	
L104	1-412-952-11	INDUCTOR 12uH	
L105	1-412-060-11	INDUCTOR CHIP 22uH	
L106	1-412-957-11	INDUCTOR 33uH	
L107	1-412-280-31	INDUCTOR 330uH	
L108	1-412-282-41	INDUCTOR 470uH	
L109	1-412-355-41	INDUCTOR 180uH	
L113	1-414-078-11	INDUCTOR 10uH	
L114	1-412-355-41	INDUCTOR 180uH	
L115	1-412-957-11	INDUCTOR 33uH	
L116	1-414-078-11	INDUCTOR 10uH	
L118	1-414-373-31	INDUCTOR CHIP 10uH	
L119	1-412-950-11	INDUCTOR 8.2uH	
L120	1-410-658-31	INDUCTOR CHIP 220uH	
L121	1-410-655-31	INDUCTOR CHIP 120uH	
L202	1-412-064-11	INDUCTOR CHIP 100uH	
L203	1-412-961-11	INDUCTOR 68uH	
L205	1-412-955-11	INDUCTOR 22uH	
L207	1-412-962-11	INDUCTOR 82uH	
L210	1-412-955-11	INDUCTOR 22uH	
L211	1-412-058-11	INDUCTOR CHIP 10uH	
L212	1-412-058-11	INDUCTOR CHIP 10uH	
L213	1-414-170-41	INDUCTOR 100uH	
L214	1-412-056-11	INDUCTOR CHIP 4.7uH	
L215	1-412-961-11	INDUCTOR 68uH	
L400	1-412-058-11	INDUCTOR CHIP 10uH	
L401	1-412-959-11	INDUCTOR 47uH	
L601	1-412-058-11	INDUCTOR CHIP 10uH	
L602	1-412-058-11	INDUCTOR CHIP 10uH	
L603	1-412-951-11	INDUCTOR 10uH	
L701	1-412-058-11	INDUCTOR CHIP 10uH	
L703	1-414-078-11	INDUCTOR 10uH	
L704	1-412-058-11	INDUCTOR CHIP 10uH	
L706	1-412-058-11	INDUCTOR CHIP 10uH	
L707	1-412-979-21	INDUCTOR 1uH	
L708	1-412-979-21	INDUCTOR 1uH	
L709	1-412-052-21	INDUCTOR CHIP 1uH	
L710	1-412-052-21	INDUCTOR CHIP 1uH	
L712	1-414-078-11	INDUCTOR 10uH	
L714	1-412-058-11	INDUCTOR CHIP 10uH	
L715	1-414-078-11	INDUCTOR 10uH	
L716	1-414-078-11	INDUCTOR 10uH	(EXCEPT TR514/TR614)
L751	1-414-078-11	INDUCTOR 10uH	
L752	1-414-196-41	INDUCTOR 47uH	
L753	1-414-196-41	INDUCTOR 47uH	
		< TRANSISTOR >	
Q060	8-729-420-24	TRANSISTOR 2SB1218A-QRS	(TR98/TR99/TR590/TR614/TR714)
Q061	8-729-101-07	TRANSISTOR 2SB798-DL	
Q062	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q063	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q064	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q065	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q101	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q102	8-729-402-48	TRANSISTOR UN521E	
Q103	8-729-230-63	TRANSISTOR 2SC4116-YG	(EXCEPT TR514/TR614)
Q104	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q105	8-729-420-24	TRANSISTOR 2SB1218A-QRS	(EXCEPT TR514/TR614)
Q106	8-729-905-23	TRANSISTOR 2SA1576-R	
Q107	8-729-824-02	TRANSISTOR 2SA1838	
Q108	8-729-402-42	TRANSISTOR UN5213	
Q109	8-729-402-42	TRANSISTOR UN5213	
Q110	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q111	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q112	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q113	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q120	8-729-403-35	TRANSISTOR UN5113	
Q123	8-729-015-74	TRANSISTOR UN5111	
Q124	8-729-117-73	TRANSISTOR 2SC4178-F14	
Q125	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q129	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q130	8-729-012-50	TRANSISTOR 2SC4400-3/4/5	
Q131	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q202	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q206	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q208	8-729-402-42	TRANSISTOR UN5213	
Q211	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q212	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q213	8-729-402-42	TRANSISTOR UN5213	
Q214	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q215	8-729-013-15	TRANSISTOR 2SC4909	
Q217	8-729-420-12	TRANSISTOR XN4213	
Q218	8-729-420-24	TRANSISTOR 2SB1218A-QRS	

Ref. No.	Part No.	Description				Remarks
Q219	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q221	8-729-402-42	TRANSISTOR	UN5213			
Q223	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q224	8-729-420-24	TRANSISTOR	2SB1218A-QRS			
Q226	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q227	8-729-013-15	TRANSISTOR	2SC4909			
Q301	8-729-807-86	TRANSISTOR	2SB1295-UL5			(TR99/TR590)
Q302	8-729-402-42	TRANSISTOR	UN5213			(TR99/TR590)
Q303	8-729-015-76	TRANSISTOR	UN5211			
Q400	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q401	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q501	8-729-420-53	TRANSISTOR	UN5115			
Q503	8-729-823-16	TRANSISTOR	2SC4555-5.6.7			(TR78/TR88/TR98/TR99/TR590)
Q504	8-729-823-16	TRANSISTOR	2SC4555-5.6.7			(TR78/TR88/TR98/TR99/TR590)
Q506	8-729-421-26	TRANSISTOR	UN5216QRS			(TR78/TR88/TR98/TR99/TR590)
Q507	8-729-421-26	TRANSISTOR	UN5216QRS			
Q510	8-729-402-42	TRANSISTOR	UN5213			(EXCEPT TR514/TR614)
Q511	8-729-402-42	TRANSISTOR	UN5213			(TR78/TR88/TR98/TR99/TR590)
Q512	8-729-402-42	TRANSISTOR	UN5213-TX			(TR714/TR814)
Q601	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q602	8-729-230-63	TRANSISTOR	2SC4116-YG			
Q603	8-729-420-53	TRANSISTOR	UN5115			
Q701	8-729-403-27	TRANSISTOR	XN4401			
Q703	8-729-402-42	TRANSISTOR	UN5213			
Q704	8-729-403-35	TRANSISTOR	UN5113			
Q705	8-729-403-35	TRANSISTOR	UN5113			
Q706	8-729-402-42	TRANSISTOR	UN5213			
Q750	8-729-420-24	TRANSISTOR	2SB1218A-QRS			
Q752	8-729-420-24	TRANSISTOR	2SB1218A-QRS			
Q753	8-729-013-15	TRANSISTOR	2SC4909			
Q754	8-729-013-15	TRANSISTOR	2SC4909			
		< RESISTOR >				
R062	1-216-864-11	METAL CHIP	0	5%	1/16W	
R063	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR98/TR99/TR590/TR614/TR714)
R077	1-216-138-00	METAL CHIP	3.3	5%	1/8W	
R078	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R079	1-216-820-11	METAL CHIP	820	5%	1/16W	
R080	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R081	1-216-818-11	METAL CHIP	560	5%	1/16W	
R082	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R083	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R084	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R085	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R086	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R087	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R088	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R091	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R092	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R093	1-216-864-11	METAL CHIP	0	5%	1/16W	(EXCEPT TR514/TR614)
R102	1-216-815-11	METAL CHIP	330	5%	1/16W	
R103	1-216-815-11	METAL CHIP	330	5%	1/16W	
R104	1-216-797-11	METAL CHIP	10	5%	1/16W	
R105	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R106	1-218-875-11	METAL CHIP	15K	0.50%	1/16W	
R107	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R108	1-216-864-11	METAL CHIP	0	5%	1/16W	
R109	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R110	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R111	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R112	1-216-837-11	METAL CHIP	22K	5%	1/16W	(EXCEPT TR514/TR614)
R113	1-216-837-11	METAL CHIP	22K	5%	1/16W	(EXCEPT TR514/TR614)
R114	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R115	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R116	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R117	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R118	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(EXCEPT TR514/TR614)
R119	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(EXCEPT TR514/TR614)
R120	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R121	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R122	1-216-818-11	METAL CHIP	560	5%	1/16W	
R123	1-216-815-11	METAL CHIP	330	5%	1/16W	
R125	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R126	1-216-797-11	METAL CHIP	10	5%	1/16W	
R127	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R128	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R129	1-216-819-11	METAL CHIP	680	5%	1/16W	
R130	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R131	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R132	1-216-813-11	METAL CHIP	220	5%	1/16W	
R133	1-216-818-11	METAL CHIP	560	5%	1/16W	
R134	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R141	1-216-816-11	METAL CHIP	390	5%	1/16W	
R149	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R150	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R152	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R153	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R154	1-216-817-11	METAL CHIP	470	5%	1/16W	
R155	1-216-807-11	METAL CHIP	68	5%	1/16W	
R156	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R157	1-216-816-11	METAL CHIP	390	5%	1/16W	
R158	1-216-819-11	METAL CHIP	680	5%	1/16W	
R159	1-216-864-11	METAL CHIP	0	5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R160	1-216-821-11	METAL CHIP	1K	5%	1/16W
R161	1-216-864-11	METAL CHIP	0	5%	1/16W
R162	1-216-835-11	METAL CHIP	15K	5%	1/16W
R163	1-216-840-11	METAL CHIP	39K	5%	1/16W
R164	1-216-864-11	METAL CHIP	0	5%	1/16W
R165	1-216-845-11	METAL CHIP	100K	5%	1/16W
R166	1-216-836-11	METAL CHIP	18K	5%	1/16W
R167	1-216-836-11	METAL CHIP	18K	5%	1/16W
R168	1-216-821-11	METAL CHIP	1K	5%	1/16W
R169	1-216-864-11	METAL CHIP	0	5%	1/16W
R170	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R171	1-216-840-11	METAL CHIP	39K	5%	1/16W
R172	1-216-835-11	METAL CHIP	15K	5%	1/16W
R173	1-216-864-11	METAL CHIP	0	5%	1/16W
R176	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R178	1-216-821-11	METAL CHIP	1K	5%	1/16W
R179	1-216-817-11	METAL CHIP	470	5%	1/16W
R180	1-216-818-11	METAL CHIP	560	5%	1/16W
R181	1-216-818-11	METAL CHIP	560	5%	1/16W
R182	1-216-809-11	METAL CHIP	100	5%	1/16W
R183	1-216-818-11	METAL CHIP	560	5%	1/16W
R184	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R185	1-216-818-11	METAL CHIP	560	5%	1/16W
R186	1-216-818-11	METAL CHIP	560	5%	1/16W
R187	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R188	1-216-837-11	METAL CHIP	22K	5%	1/16W
R189	1-216-837-11	METAL CHIP	22K	5%	1/16W
R190	1-216-837-11	METAL CHIP	22K	5%	1/16W
R191	1-216-839-11	METAL CHIP	33K	5%	1/16W
R192	1-216-814-11	METAL CHIP	270	5%	1/16W
R193	1-216-813-11	METAL CHIP	220	5%	1/16W
R194	1-216-806-11	METAL GLAZE	56	5%	1/16W (EXCEPT TR514/TR614)
R194	1-216-803-11	METAL CHIP	33	5%	1/16W (TR514/TR614)
R195	1-216-809-11	METAL CHIP	100	5%	1/16W (EXCEPT TR514/TR614)
R196	1-216-818-11	METAL CHIP	560	5%	1/16W
R197	1-216-864-11	METAL CHIP	0	5%	1/16W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-216-836-11	METAL CHIP	18K	5%	1/16W (TR78/TR514/TR614/TR714)
R202	1-216-864-11	METAL CHIP	0	5%	1/16W (TR88/TR98/TR99/TR590/TR814)
R203	1-216-827-11	METAL CHIP	3.3K	5%	1/16W (TR78/TR514/TR614/TR714)
R204	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R206	1-216-815-11	METAL CHIP	330	5%	1/16W
R210	1-216-864-11	METAL CHIP	0	5%	1/16W (TR78/TR514/TR614/TR714)
R210	1-216-837-11	METAL CHIP	22K	5%	1/16W (TR88/TR98/TR99/TR590/TR814)
R211	1-216-825-11	METAL CHIP	2.2K	5%	1/16W (TR88/TR98/TR99/TR590/TR814)
R212	1-216-841-11	METAL CHIP	47K	5%	1/16W
R213	1-216-841-11	METAL CHIP	47K	5%	1/16W
R214	1-216-807-11	METAL CHIP	68	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R215	1-216-821-11	METAL CHIP	1K	5%	1/16W
R216	1-216-821-11	METAL CHIP	1K	5%	1/16W
R218	1-218-879-11	METAL CHIP	22K	0.50%	1/16W
R219	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R220	1-216-833-11	METAL CHIP	10K	5%	1/16W
R221	1-216-833-11	METAL CHIP	10K	5%	1/16W
R222	1-216-818-11	METAL CHIP	560	5%	1/16W
R223	1-216-821-11	METAL CHIP	1K	5%	1/16W
R225	1-216-833-11	METAL CHIP	10K	5%	1/16W
R226	1-216-817-11	METAL CHIP	470	5%	1/16W
R228	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R229	1-218-863-11	METAL CHIP	4.7K	0.50%	1/16W
R230	1-216-821-11	METAL CHIP	1K	5%	1/16W
R232	1-216-821-11	METAL CHIP	1K	5%	1/16W
R234	1-218-849-11	METAL CHIP	1.2K	0.50%	1/16W
R235	1-216-821-11	METAL CHIP	1K	5%	1/16W
R239	1-216-864-11	METAL CHIP	0	5%	1/16W
R241	1-218-839-11	METAL GLAZE	470	0.50%	1/16W
R243	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R244	1-216-843-11	METAL CHIP	68K	5%	1/16W
R245	1-216-864-11	METAL CHIP	0	5%	1/16W
R246	1-216-864-11	METAL CHIP	0	5%	1/16W
R247	1-216-833-11	METAL CHIP	10K	5%	1/16W
R248	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R249	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R254	1-216-841-11	METAL CHIP	47K	5%	1/16W
R255	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R256	1-216-833-11	METAL CHIP	10K	5%	1/16W
R257	1-216-821-11	METAL CHIP	1K	5%	1/16W
R259	1-216-833-11	METAL CHIP	10K	5%	1/16W
R260	1-216-817-11	METAL CHIP	470	5%	1/16W
R263	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R265	1-216-817-11	METAL CHIP	470	5%	1/16W
R266	1-216-864-11	METAL CHIP	0	5%	1/16W
R267	1-216-864-11	METAL CHIP	0	5%	1/16W
R268	1-216-820-11	METAL CHIP	820	5%	1/16W
R273	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R274	1-216-821-11	METAL CHIP	1K	5%	1/16W
R276	1-216-864-11	METAL CHIP	0	5%	1/16W
R277	1-216-819-11	METAL CHIP	680	5%	1/16W
R279	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R281	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R283	1-216-819-11	METAL CHIP	680	5%	1/16W
R284	1-216-819-11	METAL CHIP	680	5%	1/16W
R286	1-216-836-11	METAL CHIP	18K	5%	1/16W
R287	1-216-864-11	METAL CHIP	0	5%	1/16W
R289	1-216-839-11	METAL CHIP	33K	5%	1/16W
R291	1-216-864-11	METAL CHIP	0	5%	1/16W
R293	1-216-817-11	METAL CHIP	470	5%	1/16W
R294	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R295	1-216-852-11	METAL CHIP	390K	5%	1/16W
R296	1-216-849-11	METAL CHIP	220K	5%	1/16W

Ref. No.	Part No.	Description				Remarks
R297	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R298	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R299	1-218-272-11	METAL GLAZE	5.1K	5%	1/16W	
R301	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R302	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R303	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R304	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R305	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R307	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R308	1-216-817-11	METAL CHIP	470	5%	1/16W	(TR99/TR590)
R309	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TR99/TR590)
R310	1-208-762-11	METAL GLAZE	150	0.50%	1/10W	(TR99/TR590)
R311	1-208-750-11	METAL GLAZE	47	0.50%	1/10W	(TR99/TR590)
R312	1-208-750-11	METAL GLAZE	47	0.50%	1/10W	(TR99/TR590)
R313	1-208-750-11	METAL GLAZE	47	0.50%	1/10W	(TR99/TR590)
R314	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R315	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W	
R316	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R317	1-218-290-11	METAL GLAZE	6.2K	5%	1/16W	
R318	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R319	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R320	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R321	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R327	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R328	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R329	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R330	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R331	1-216-864-11	METAL CHIP	0	5%	1/16W	
R333	1-216-864-11	METAL CHIP	0	5%	1/16W	
R334	1-208-766-11	METAL GLAZE	220	0.50%	1/10W	
R336	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR78/TR88/TR98)
R400	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R401	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R402	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R403	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R404	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R405	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R406	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R407	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R408	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R409	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R410	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R411	1-216-864-11	METAL CHIP	0	5%	1/16W	
R412	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R413	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R414	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R417	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R418	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R419	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R420	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R421	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R422	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R423	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R424	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R425	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R426	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R427	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R428	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R429	1-216-800-11	METAL GLAZE	18	5%	1/16W	
R430	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R434	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R436	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R437	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R439	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R440	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R441	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R442	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R443	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R444	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R445	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R446	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R447	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R448	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R449	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R450	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R451	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R452	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R453	1-217-671-11	METAL CHIP	1	5%	1/10W	
R454	1-217-671-11	METAL CHIP	1	5%	1/10W	
R455	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R456	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R458	1-217-671-11	METAL CHIP	1	5%	1/10W	
R459	1-217-671-11	METAL CHIP	1	5%	1/10W	
R460	1-217-671-11	METAL CHIP	1	5%	1/10W	
R461	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R462	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R463	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R464	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R465	1-216-808-11	METAL CHIP	82	5%	1/16W	
R466	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R467	1-216-019-00	METAL CHIP	56	5%	1/10W	
R468	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R469	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R471	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R472	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R473	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R474	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R475	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R476	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R477	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R478	1-216-821-11	METAL CHIP	1K	5%	1/16W	

Ref. No.	Part No.	Description	Remarks
R479	1-216-817-11	METAL CHIP 470 5% 1/16W	
R481	1-216-817-11	METAL CHIP 470 5% 1/16W	
R482	1-216-817-11	METAL CHIP 470 5% 1/16W	
R501	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R501	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TR514/TR614/TR714/TR814)
R502	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R503	1-218-897-11	METAL CHIP 120K 0.50% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R503	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	(TR514/TR614/TR714/TR814)
R505	1-216-810-11	METAL CHIP 120 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R506	1-218-897-11	METAL CHIP 120K 0.50% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R506	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	(TR514/TR614/TR714/TR814)
R507	1-216-810-11	METAL CHIP 120 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R511	1-218-875-11	METAL CHIP 15K 0.50% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R511	1-218-881-11	METAL CHIP 27K 0.50% 1/16W	(TR514/TR614/TR714/TR814)
R512	1-216-864-11	METAL CHIP 0 5% 1/16W	
R513	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R514	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R514	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR514/TR614/TR714/TR814)
R515	1-216-813-11	METAL CHIP 220 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R515	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR514/TR614/TR714/TR814)
R516	1-218-897-11	METAL CHIP 120K 0.50% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R517	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R517	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TR514/TR614/TR714/TR814)
R519	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R519	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR514/TR614/TR714/TR814)
R522	1-216-817-11	METAL CHIP 470 5% 1/16W	
R523	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R523	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TR514/TR614/TR714/TR814)
R526	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R527	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R528	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R529	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R531	1-216-817-11	METAL CHIP 470 5% 1/16W	
R532	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)

Ref. No.	Part No.	Description	Remarks
R533	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R537	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R537	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR514/TR614/TR714/TR814)
R556	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R557	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R558	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR78/TR88/TR98/TR99/TR590)
R601	1-216-001-00	METAL CHIP 10 5% 1/10W	
R603	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R604	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R605	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R606	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R607	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R608	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R609	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R610	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R611	1-216-815-11	METAL CHIP 330 5% 1/16W	
R612	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R613	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R614	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R615	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R616	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R618	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R619	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R620	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R621	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R623	1-216-864-11	METAL CHIP 0 5% 1/16W	
R628	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R629	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R630	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R631	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R632	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R701	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R702	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R703	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R704	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R706	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R707	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R708	1-216-864-11	METAL CHIP 0 5% 1/16W	
R709	1-218-847-11	METAL CHIP 1K 0.50% 1/16W	
R710	1-218-876-11	METAL CHIP 16K 0.50% 1/16W	
R719	1-216-818-11	METAL CHIP 560 5% 1/16W	
R720	1-216-818-11	METAL CHIP 560 5% 1/16W	
R721	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R722	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R723	1-216-818-11	METAL CHIP 560 5% 1/16W	
R724	1-216-818-11	METAL CHIP 560 5% 1/16W	

Ref. No.	Part No.	Description			Remarks
R725	1-216-864-11	METAL CHIP	0	5%	1/16W
R726	1-216-846-11	METAL CHIP	120K	5%	1/16W
R727	1-216-839-11	METAL CHIP	33K	5%	1/16W
R728	1-216-853-11	METAL CHIP	470K	5%	1/16W
R729	1-216-864-11	METAL CHIP	0	5%	1/16W
R730	1-216-864-11	METAL CHIP	0	5%	1/16W
R732	1-216-841-11	METAL CHIP	47K	5%	1/16W
R733	1-216-841-11	METAL CHIP	47K	5%	1/16W
R734	1-216-841-11	METAL CHIP	47K	5%	1/16W
R735	1-216-841-11	METAL CHIP	47K	5%	1/16W
R737	1-216-864-11	METAL CHIP	0	5%	1/16W
R740	1-216-839-11	METAL CHIP	33K	5%	1/16W
R741	1-216-841-11	METAL CHIP	47K	5%	1/16W
R742	1-216-837-11	METAL CHIP	22K	5%	1/16W
R743	1-216-839-11	METAL CHIP	33K	5%	1/16W
R744	1-216-841-11	METAL CHIP	47K	5%	1/16W
R745	1-216-837-11	METAL CHIP	22K	5%	1/16W
R751	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R756	1-216-864-11	METAL CHIP	0	5%	1/16W
R757	1-216-864-11	METAL CHIP	0	5%	1/16W
R760	1-216-864-11	METAL CHIP	0	5%	1/16W
R761	1-216-813-11	METAL CHIP	220	5%	1/16W
R763	1-216-840-11	METAL CHIP	39K	5%	1/16W (TR78/TR98/TR99/TR590/TR714/TR814)
R775	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

< SWITCH >

Ref. No.	Part No.	Description
S301	1-692-088-41	SWITCH, TACTILE (EDIT SEARCH +)
S302	1-692-088-41	SWITCH, TACTILE (EDIT SEARCH -)
S303	1-692-088-41	SWITCH, TACTILE (PLAY)
S304	1-692-088-41	SWITCH, TACTILE (PAUSE)
S305	1-692-088-41	SWITCH, TACTILE (REW)
S306	1-692-088-41	SWITCH, TACTILE (FF)
S307	1-692-088-41	SWITCH, TACTILE (STOP)

< VIBRATOR >

Ref. No.	Part No.	Description
X400	1-760-314-11	VIBRATOR, CRYSTAL 11.718MHz
X701	1-760-320-11	VIBRATOR, CRYSTAL 28.375MHz

A-7092-696-A VF-100 BOARD, COMPLETE
****
(TR98/TR99/TR590/TR714)
(Ref.No.4,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C901	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C902	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C903	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C904	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C905	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C906	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C907	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C908	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C909	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C910	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C911	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C913	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C914	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C917	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C920	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C921	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C925	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C926	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C927	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C928	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C929	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C930	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C931	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C933	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C934	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C935	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C936	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C937	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C938	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C939	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C940	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C941	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C942	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C943	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C947	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C948	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C949	1-135-178-11	TANTAL. CHIP	1.5uF	20%	20V
C950	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C951	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C953	1-164-346-11	CERAMIC CHIP	1uF		16V
C954	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C956	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C970	1-162-974-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref. No.	Part No.	Description
CN901	1-766-345-21	CONNECTOR, FFC/FPC 15P
* CN902	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P
CN903	1-573-925-11	CONNECTOR, FFC/FPC (ZIF) 16P

< DIODE >

Ref. No.	Part No.	Description	
D901	8-713-102-80	DIODE	1T369-01-T8A

< IC >

Ref. No.	Part No.	Description	
IC901	8-752-067-59	IC	CXA1785R-T4
IC902	8-752-378-00	IC	CXD2411AR-T4
IC903	8-759-251-40	IC	MB88E346PFV-G-BND-ER
IC904	8-759-075-66	IC	TA75S01F

< COIL >

Ref. No.	Part No.	Description	Remarks
L901	1-412-951-11	INDUCTOR 10uH	
L902	1-412-962-11	INDUCTOR 82uH	
L904	1-412-959-11	INDUCTOR 47uH	
L905	1-412-949-21	INDUCTOR 6.8uH	
L906	1-412-959-11	INDUCTOR 47uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q901	8-729-427-74	TRANSISTOR	XP4601
Q902	8-729-402-42	TRANSISTOR	UN5213

< RESISTOR >

Ref. No.	Part No.	Description			Remarks
R902	1-218-877-11	METAL CHIP	18K	0.50%	1/16W
R903	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R904	1-218-989-11	METAL GLAZE	1M	5%	1/16W
R905	1-218-990-11	CONDUCTOR, CHIP	(1005)		
R906	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R907	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R908	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R910	1-218-946-11	METAL GLAZE	270	5%	1/16W
R911	1-218-990-11	CONDUCTOR, CHIP	(1005)		
R912	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R914	1-218-964-11	METAL GLAZE	8.2K	5%	1/16W
R919	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R920	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R921	1-220-397-11	METAL GLAZE	4.7M	5%	1/16W
R922	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R923	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R924	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W
R925	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R926	1-218-973-11	METAL GLAZE	47K	5%	1/16W
R930	1-218-965-11	METAL GLAZE	10K	5%	1/16W
R931	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R934	1-218-953-11	METAL GLAZE	1K	5%	1/16W
R936	1-218-875-11	METAL CHIP	15K	0.50%	1/16W
R937	1-218-905-11	METAL CHIP	270K	0.50%	1/16W
R938	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R939	1-218-969-11	METAL GLAZE	22K	5%	1/16W
R943	1-218-990-11	CONDUCTOR, CHIP	(1005)		
R947	1-218-939-11	METAL GLAZE	68	5%	1/16W
R948	1-218-939-11	METAL GLAZE	68	5%	1/16W
R949	1-218-939-11	METAL GLAZE	68	5%	1/16W
R953	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R954	1-218-972-11	METAL GLAZE	39K	5%	1/16W
R959	1-218-976-11	METAL GLAZE	82K	5%	1/16W
R960	1-218-977-11	METAL GLAZE	100K	5%	1/16W
R961	1-218-982-11	METAL GLAZE	270K	5%	1/16W
R969	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R970	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R971	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R973	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R974	1-218-971-11	METAL GLAZE	33K	5%	1/16W
R975	1-218-974-11	METAL GLAZE	56K	5%	1/16W
R976	1-218-970-11	METAL GLAZE	27K	5%	1/16W
R979	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R980	1-218-990-11	CONDUCTOR, CHIP	(1005)		
R981	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R982	1-218-981-11	METAL GLAZE	220K	5%	1/16W
R990	1-216-864-11	METAL CHIP	0	5%	1/16W

< VIBRATOR >

Ref. No.	Part No.	Description
X901	1-579-466-11	VIBRATOR, CRYSTAL 3.58MHz

A-7092-696-A VF-101 BOARD, COMPLETE
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(TR98/TR99/TR590/TR714)
(Ref.No.4,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C851	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C852	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C853	1-104-916-11	TANTAL. CHIP	6.8uF	20%	20V
C854	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C855	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C856	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C857	1-164-676-11	CERAMIC CHIP	2200PF	5%	16V
C858	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C859	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C860	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C865	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C867	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C868	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C870	1-162-974-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

Ref. No.	Part No.	Description
CN851	1-766-344-21	CONNECTOR, FFC/FPC 14P
CN852	1-766-349-21	CONNECTOR, FFC/FPC 19P
CN853	1-573-305-11	CONNECTOR, BOARD TO BOARD 10P

< DIODE >

Ref. No.	Part No.	Description	
D851	8-719-951-21	DIODE	PR1102W
D852	8-719-033-15	DIODE	HN2D02FU-TE85R

< IC >

Ref. No.	Part No.	Description	
IC851	8-759-097-75	IC	MB3789PFV-G-BND
IC852	8-759-510-71	IC	BA10358F-E2

< COIL >

Ref. No.	Part No.	Description
L853	1-412-033-11	INDUCTOR CHIP 220uH

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q853	8-729-028-81	TRANSISTOR	DTA123JUA-T106

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R851	1-216-819-11	METAL CHIP 680 5% 1/16W	
R852	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R853	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R854	1-218-901-11	METAL CHIP 180K 0.50% 1/16W	
R855	1-218-972-11	METAL GLAZE 39K 5% 1/16W	
R856	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R857	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R858	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R859	1-218-901-11	METAL CHIP 180K 0.50% 1/16W	
R860	1-218-887-11	METAL CHIP 47K 0.50% 1/16W	
R861	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R862	1-218-970-11	METAL GLAZE 27K 5% 1/16W	
R863	1-218-979-11	METAL GLAZE 150K 5% 1/16W	
R864	1-218-973-11	METAL GLAZE 47K 5% 1/16W	
R865	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R867	1-218-982-11	METAL GLAZE 270K 5% 1/16W	
R868	1-218-990-11	CONDUCTOR, CHIP (1005)	
R869	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R870	1-218-974-11	METAL GLAZE 56K 5% 1/16W	
R871	1-218-982-11	METAL GLAZE 270K 5% 1/16W	
R872	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R873	1-218-983-11	METAL GLAZE 330K 5% 1/16W	
R874	1-218-979-11	METAL GLAZE 150K 5% 1/16W	
R875	1-218-954-11	METAL GLAZE 1.2K 5% 1/16W	
R879	1-218-969-11	METAL GLAZE 22K 5% 1/16W	
R881	1-218-985-11	METAL GLAZE 470K 5% 1/16W	
R891	1-216-296-91	CONDUCTOR, CHIP (3216)	

A-7072-362-A VF-102 BOARD, COMPLETE
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(TR78/TR88/TR514/TR814)
(Ref.No.6,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C902	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C903	1-135-091-91	TANTAL. CHIP 1uF 20% 16V	
C904	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C905	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C906	1-162-638-11	CERAMIC CHIP 1uF 16V	
C907	1-137-306-11	FILM CHIP 0.1uF 5% 16V	
C908	1-162-920-11	CERAMIC CHIP 27PF 5% 50V	
⚠C910	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
⚠C911	1-164-715-11	CERAMIC CHIP 0.0068uF 5% 50V	
C912	1-107-854-11	TANTAL. CHIP 68uF 20% 6.3V	
C914	1-128-007-11	ELECT CHIP 2.2uF 20% 35V	
C915	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C916	1-164-611-11	CERAMIC CHIP 0.001uF 10% 500V	
C917	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C918	1-107-854-11	TANTAL. CHIP 68uF 20% 6.3V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN901	1-566-537-11	CONNECTOR, FPC (NON ZIF) 5P	
CN902	1-573-290-21	PIN, CONNECTOR (1.5MM) (SMD) 4P	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D901	8-719-951-21	DIODE PR1102W-TR	
D903	8-719-404-49	DIODE MA111	

< IC >

Ref. No.	Part No.	Description	Remarks
IC901	8-759-196-14	IC BA7149F-E2	

< COIL >

Ref. No.	Part No.	Description	Remarks
L901	1-412-031-11	INDUCTOR CHIP 47uH	
L902	1-410-387-11	INDUCTOR CHIP 33uH	
⚠L903	1-402-680-21	COIL, FERRITE (HCL)	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q901	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q902	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q903	8-729-216-31	TRANSISTOR 2SA1163-G	
Q904	8-729-120-28	TRANSISTOR 2SC1623-L5L6	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R901	1-216-817-11	METAL CHIP 470 5% 1/16W	
R902	1-216-817-11	METAL CHIP 470 5% 1/16W	
R903	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R904	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R905	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R906	1-216-813-11	METAL CHIP 220 5% 1/16W	
R907	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R908	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R909	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R910	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R911	1-216-160-00	METAL GLAZE 27 5% 1/8W	
R912	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R913	1-216-820-11	METAL CHIP 820 5% 1/16W	
R914	1-216-813-11	METAL CHIP 220 5% 1/16W	
R915	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	
R916	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R917	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R918	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R919	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R920	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R921	1-216-795-11	METAL GLAZE 6.8 5% 1/16W	
R922	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R923	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R924	1-216-862-11	METAL GLAZE 2.7M 5% 1/16W	

Note: The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Note: Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

Ref. No.	Part No.	Description	Remarks
R925	1-216-862-11	METAL GLAZE 2.7M 5% 1/16W	
R926	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R927	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R928	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R929	1-216-818-11	METAL CHIP 560 5% 1/16W	
R930	1-216-815-11	METAL CHIP 330 5% 1/16W	
R931	1-216-810-11	METAL CHIP 120 5% 1/16W	
R933	1-216-811-11	METAL CHIP 150 5% 1/16W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remarks
RV904	1-238-862-11	RES, ADJ, CERMET 1M	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remarks
⚠T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK	

< THERMISTOR >

Ref. No.	Part No.	Description	Remarks
TH901	1-809-350-21	THERMISTOR, NTC (2125)	

< FLAT CABLE >

Ref. No.	Part No.	Description	Remarks
W901	1-540-019-21	SOCKET ASSY, CRT	

A-7092-688-A VF-93 BOARD, COMPLETE (TR614)
****
(Ref.No.7,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remarks
C851	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C852	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C853	1-104-916-11	TANTAL. CHIP 6.8uF 20% 20V	
C854	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C855	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C856	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C857	1-164-676-11	CERAMIC CHIP 2200PF 5% 16V	
C858	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C859	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C860	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C861	1-104-917-11	TANTAL. CHIP 15uF 20% 20V	
C862	1-165-178-11	CERAMIC CHIP 6.8uF 16V	
C863	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C864	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C865	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C866	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C867	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C868	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C869	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C870	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C890	1-165-128-11	CERAMIC CHIP 0.22uF 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remarks
CN851	1-766-344-21	CONNECTOR, FFC/FPC 14P	
CN852	1-573-354-11	CONNECTOR, FFC/FPC 14P	
CN853	1-573-811-11	CONNECTOR, BOARD TO BOARD 12P	

< DIODE >

Ref. No.	Part No.	Description	Remarks
D851	8-719-951-21	DIODE PR1102W-TR	
D852	8-719-043-70	DIODE MA6S121-(TX)	
D853	8-719-802-36	DIODE 1SS250-TE85L	

< IC >

Ref. No.	Part No.	Description	Remarks
IC851	8-759-097-75	IC MB3789PFV-G-BND-ER	
IC852	8-759-701-01	IC NJM2904E(TE2)	

< COIL >

Ref. No.	Part No.	Description	Remarks
L851	1-412-033-11	INDUCTOR CHIP 220uH	
L852	1-412-029-11	INDUCTOR CHIP 10uH	
L853	1-412-033-11	INDUCTOR CHIP 220uH	

< TRANSISTOR >

Ref. No.	Part No.	Description	Remarks
Q851	8-729-024-60	TRANSISTOR MTD6N15T4	
Q853	8-729-027-29	TRANSISTOR DTA123JKA-T146	

< RESISTOR >

Ref. No.	Part No.	Description	Remarks
R851	1-216-819-11	METAL CHIP 680 5% 1/16W	
R852	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R853	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R854	1-218-901-11	METAL CHIP 180K 0.50% 1/16W	
R855	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R856	1-218-899-11	METAL CHIP 150K 0.50% 1/16W	
R857	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R858	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R859	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R860	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R861	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R862	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R863	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R864	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R865	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R867	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R868	1-216-864-11	METAL CHIP 0 5% 1/16W	
R869	1-218-893-11	METAL CHIP 82K 0.50% 1/16W	
R870	1-218-885-11	METAL CHIP 39K 0.50% 1/16W	
R871	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R872	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R873	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R874	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R875	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R878	1-216-809-11	METAL CHIP 100 5% 1/16W	

Note:	**Note:**
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

Ref. No.	Part No.	Description			Remarks
R879	1-216-837-11	METAL CHIP	22K	5%	1/16W
R880	1-216-839-11	METAL CHIP	33K	5%	1/16W
R881	1-216-853-11	METAL CHIP	470K	5%	1/16W
R891	1-216-296-91	CONDUCTOR, CHIP (3216)			

< TRANSFORMER >

T851	1-426-848-51	TRANSFORMER, INVERTER			

A-7092-688-A VF-94 BOARD, COMPLETE (TR614)
****

(Ref.No.7,000 Series)

< CAPACITOR >

C901	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C902	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C903	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C904	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C905	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C906	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C907	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C908	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C909	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C910	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C911	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C913	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C914	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C915	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C917	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C920	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C921	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C925	1-162-995-11	CERAMIC CHIP	0.022uF		50V
C926	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C927	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C928	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C929	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C930	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C931	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C932	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C933	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C934	1-165-320-11	CERAMIC CHIP	0.47uF	10%	16V
C935	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C936	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C937	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C938	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C939	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C940	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C941	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C942	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C943	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C947	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C948	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C949	1-135-178-11	TANTAL. CHIP	1.5uF	20%	20V
C950	1-162-974-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remarks
C951	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C953	1-164-346-11	CERAMIC CHIP	1uF		16V
C954	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C956	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C970	1-162-974-11	CERAMIC CHIP	0.01uF		50V

< CONNECTOR >

CN901	1-573-354-11	CONNECTOR, FFC/FPC 14P
* CN902	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P
* CN903	1-573-356-11	CONNECTOR, FFC/FPC 16P

< DIODE >

D901	8-713-102-80	DIODE	1T369-01-T8A
D903	8-719-404-49	DIODE	MA111

< IC >

IC901	8-752-067-59	IC	CXA1785R-T4
IC902	8-752-369-16	IC	CXD2411R-T4
IC903	8-759-251-40	IC	MB88E346PFV-G-BND-ER
IC904	8-759-075-66	IC	TA75S01F(TE85L)

< COIL >

L901	1-412-951-11	INDUCTOR 10uH
L902	1-412-962-11	INDUCTOR 82uH
L904	1-412-959-11	INDUCTOR 47uH
L905	1-412-949-21	INDUCTOR 6.8uH
L906	1-412-962-11	INDUCTOR 82uH

< TRANSISTOR >

Q901	8-729-402-84	TRANSISTOR	XN4601-TW
Q902	8-729-402-42	TRANSISTOR	UN5213-TX

< RESISTOR >

R902	1-218-877-11	METAL CHIP	18K	0.50%	1/16W
R903	1-216-842-11	METAL CHIP	56K	5%	1/16W
R904	1-216-857-11	METAL CHIP	1M	5%	1/16W
R905	1-216-864-11	METAL CHIP	0	5%	1/16W
R906	1-216-841-11	METAL CHIP	47K	5%	1/16W
R907	1-216-833-11	METAL CHIP	10K	5%	1/16W
R908	1-216-821-11	METAL CHIP	1K	5%	1/16W
R910	1-216-814-11	METAL CHIP	270	5%	1/16W
R911	1-216-864-11	METAL CHIP	0	5%	1/16W
R912	1-216-821-11	METAL CHIP	1K	5%	1/16W
R914	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R919	1-216-839-11	METAL CHIP	33K	5%	1/16W
R920	1-216-839-11	METAL CHIP	33K	5%	1/16W
R921	1-220-397-11	METAL GLAZE	4.7M	5%	1/16W
R922	1-216-839-11	METAL CHIP	33K	5%	1/16W
R923	1-216-839-11	METAL CHIP	33K	5%	1/16W
R924	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R925	1-216-839-11	METAL CHIP	33K	5%	1/16W
R926	1-216-841-11	METAL CHIP	47K	5%	1/16W
R930	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description	Remarks
R931	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R934	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R936	1-218-875-11	METAL CHIP 15K 0.50% 1/16W	
R937	1-218-905-11	METAL CHIP 270K 0.50% 1/16W	
R938	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R939	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R943	1-216-864-11	METAL CHIP 0 5% 1/16W	
R947	1-216-807-11	METAL CHIP 68 5% 1/16W	
R948	1-216-807-11	METAL CHIP 68 5% 1/16W	
R949	1-216-807-11	METAL CHIP 68 5% 1/16W	
R953	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R954	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R959	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R960	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R961	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R969	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R970	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R971	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R973	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R974	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R975	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R976	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R979	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R980	1-216-864-11	METAL CHIP 0 5% 1/16W	
R981	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R982	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R990	1-216-864-11	METAL CHIP 0 5% 1/16W	
		< VIBRATOR >	
X901	1-579-466-11	VIBRATOR, CRYSTAL 3.58MHz	

Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS *************	
61	1-542-259-11	MICROPHONE, CAP	
66	1-777-088-11	CABLE, FLEXIBLE FLAT 8P	
72	1-517-530-11	LIGHT, VIDEO (TR78/TR88/TR98)	
73	1-517-531-11	LAMP (TR78/TR88/TR98)	
103	1-775-520-11	CABLE, FLEXIBLE FLAT 45P	
106	1-660-437-11	FP-427 FLEXIBLE BOARD) (TR98/TR99/TR590)	
110	1-801-215-11	DISPLAY PANEL, LIQUID CRYSTAL (TR99/TR590)	
120	1-776-866-11	CABLE, FLEXIBLE FLAT 6P	
124	1-517-529-11	LIGHT, BACK (TR99/TR590)	
162	1-660-438-11	FP-425 FLEXIBLE BOARD) (TR98/TR99/TR590/TR714)	
165	8-753-015-20	LCX005BK-1 (TR98/TR99/TR590/TR714)	
171	1-658-344-11	FP-282 BOARD (TR614)	
179	8-753-015-20	LCX005BK-1 (TR614)	
⚠189	1-452-673-31	CRT ASSY (M01KXX90WB) (TR78/TR88/TR514/TR814)	
207	1-775-516-11	CABLE, FLEXIBLE FLAT 16P	
209	1-547-739-21	LENS, ZOOM (VCL-5412WB)	
211	1-547-558-21	FILTER BLOCK, OPTICAL (TR78/TR514/TR614/TR714)	
211	1-547-735-51	FILTER BLOCK, OPTICAL (TR88/TR98/TR99/TR590/TR814)	
D001	8-719-988-42	DIODE GL453S	
IC790	A-7030-368-A	CCD BLOCK ASSY (ICX054AK-12)(CCD IMAGER)(TR78/TR514/TR614/TR714)	
IC790	A-7030-373-A	CCD BLOCK ASSY (ICX059AK-42)(CCD IMAGER)(TR88/TR98/TR99/TR590/TR814)	
M901	A-7048-804-A	DRUM BLOCK ASSY(DGH-0C1A)	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

Note:	**Note:**
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES & PACKING MATERIALS *******************************	
⚠	A-7003-839-A	AC-V15 AC POWER(US/Canadian)	
⚠	A-7003-840-A	AC-V15 AC POWER(E)	
⚠	A-7003-969-A	AC-V15 AC POWER(Hong Kong)	
	A-7092-697-A	CASE (N) ASSY (2), BATTERY (TR78/TR88/TR98/TR99)	
	1-473-342-11	REMOTE COMMANDER (RMT-713)	
⚠	1-569-008-11	ADAPTER, CONVERSION 2P (TR590)	
	1-574-039-21	CORD, CONNECTION (AV)1.5m (TR514/TR614/TR714/TR814)	
	1-575-334-11	CORD, CONNECTION (AV STEREO)1.5m (TR78/TR88/TR98/TR99/TR590)	
	3-336-764-01	SHEET, PROTECTION (TR590PK)	
*	3-704-291-01	BAG (STANDARD), PROTECTION (TR590PK)	
	3-810-917-11	MANUAL, INSTRUCTION (English) (TR78/TR88)	
	3-810-918-12	MANUAL, INSTRUCTION (English) (TR99/TR514/TR614/TR714/TR814)	

Ref. No.	Part No.	Description	Remarks
	3-810-918-21	MANUAL, INSTRUCTION (English/Spanish) (TR590)	
	3-810-918-31	MANUAL, INSTRUCTION (Chinese) (TR590)	
	3-947-969-21	BELT (S), SHOULDER	
	3-967-166-01	CASE (330), SOFT (TR590PK)	
*	3-969-942-01	INDIVIDUAL CARTON (TR514)	
*	3-969-942-11	INDIVIDUAL CARTON (TR814)	
*	3-969-942-21	INDIVIDUAL CARTON (TR714)	
*	3-970-546-01	CUSHION, ACC (EXCEPT TR590)	
*	3-970-547-01	CUSHION (LOWER)(EXCEPT TR590)	
**	NP-33	BATTERY PACK	

NOTE.
**MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

Note:	**Note:**
The components identified by matk ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifie.

5. V SUB adjustment

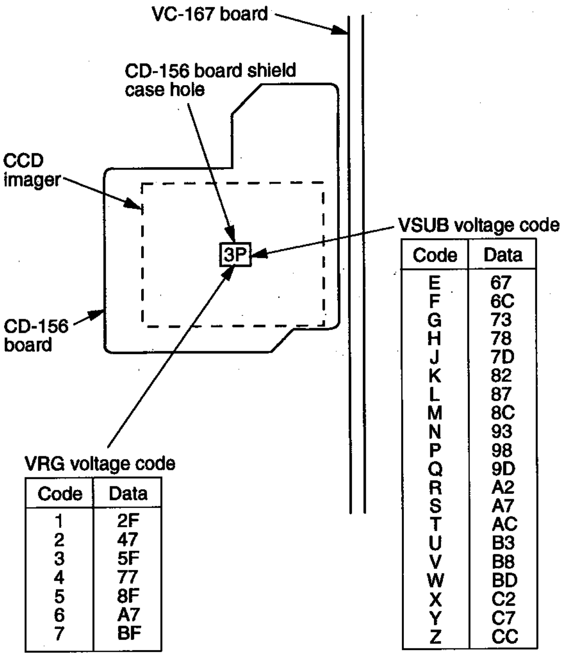
Subject	Not required
Adjustment Page	F
Adjustment Address	26

Related Adjustments:

"MAX gain adjustment", "Auto white balance reference data input", "Auto white balance adjustment", "Color reproductivity adjustment".

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	26		Reading a voltage code of V SUB indicated by CCD imager then input data of a table (Fig.6-1-7)
3	F	26		Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)



VSUB voltage code

Code	Data
E	67
F	6C
G	73
H	78
J	7D
K	82
L	87
M	8C
N	93
P	98
Q	9D
R	A2
S	A7
T	AC
U	B3
V	B8
W	BD
X	C2
Y	C7
Z	CC

VRG voltage code

Code	Data
1	2F
2	47
3	5F
4	77
5	8F
6	A7
7	BF

Fig 6-1-7

6. VRG adjustment

Subject	Not required
Adjustment Page	F
Adjustment Address	27

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	27		Reading a voltage code of V SUB indicated by CCD imager then input data of a table (Fig.6-1-7)
3	F	27		Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

7. Page F data modification

All the data of page F are automatically initialized if the initialization is executed. However, among the initialized data, the following addresses require manual modification of data after the page F data is initialized.

*A model : CCD-TR514 model
B model : CCD-TR714 model
C model : CCD-TR814 model
D model : CCD-TR99 model

Modification procedure:

Order	Page	Address	Data				Procedure
			A model	B model	C model	D model	
1	6	00	01				After setting the data, Press the PAUSE button. (Preparation)
2	F	03	22	22	22	22	Set each data to each address, and press the PAUSE button.
		04	10	50	60	64	
		05	E1	E1	E1	F1	
		06	18	18	18	18	
		07	00	06	07	07	
		08	04	C4	24	24	
		17	B9	B9	B9	B9	
		19	53	53	53	53	
		1A	7D	7D	7D	7D	
		1E	8D	8D	8D	8D	
		1F	9E	9E	9E	9E	
		20	8E	8E	8E	8E	
		21	85	85	85	85	
		31	FB	FB	FC	FC	
		32	F4	F4	F4	F4	
		44	96	96	96	96	
		45	68	68	68	68	
		47	77 or 95	77 or 95	77 or 95	77 or 95	
		49	77	77	77	77	
		4B	77	77	77	77	
		4D	76	76	76	76	
		4F	76	76	76	76	
		53	A8	A8	A8	A8	
		54	AF	AF	AF	AF	
		5A	7A	7A	7A	7A	
		5C	1B	1B	17	17	
		5D	34	34	32	32	
		5E	24	24	—	—	
		60	—	—	15	15	
		61	A7	A7	BA	BA	
		62	—	—	C3	C3	
		63	B5	B3	B2	B2	
		64	2E	38	1A	1A	
		65	—	—	00	00	
		67	—	—	01	01	
		68	—	—	6B	6B	
		6B	—	—	6C	6C	
		6C	—	—	5C	5C	
		72	—	—	20	20	
		74	—	—	3C	3C	
		76	00	00	00	00	
		78	E8	E8	E0	E0	
		79	30	30	30	30	
		7A	10	10	10	10	
		7D	26	26	26	26	
		87	—	—	1F	1F	
		88	—	—	20	20	
		89	—	02	02	02	
		E4-EF	00	00	00	00	
		F5	A8	A8	A8	A8	
		F6	5E	5E	5E	5E	
		F7	CC	CC	A8	A8	

*E model : CCD-TR590/590PK model
F model : CCD-TR98 model
G model : CCD-TR88 model
H model : CCD-TR78 model
I model : CCD-TR614 model

Modification procedure:

Order	Page	Address	Data					Procedure
			E model	F model	G model	H model	I model	
1	6	00	01					After setting the data, Press the PAUSE button. (Preparation)
2	F	03	23	22	22	22	22	Set each data to each address, and press the PAUSE button.
		04	64	64	64	54	10	
		05	F1	E1	E1	E1	E1	
		06	18	18	18	18	18	
		07	07	07	07	06	00	
		08	24	24	24	C4	04	
		17	B9	B9	B9	B9	B9	
		19	53	53	53	53	53	
		1A	7D	7D	7D	7D	7D	
		1E	8D	8D	8D	8D	8D	
		1F	9E	9E	9E	9E	9E	
		20	8E	8E	8E	8E	8E	
		21	85	85	85	85	85	
		31	FC	FC	FC	FB	FB	
		32	F4	F4	F4	F4	F4	
		44	96	96	96	96	96	
		45	68	68	68	68	68	
		47	77 or 95	77 or 95	77 or 95	77 or 95	77 or 95	
		49	77	77	77	77	77	
		4B	77	77	77	77	77	
		4D	76	76	76	76	76	
		4F	76	76	76	76	76	
		53	A8	A8	A8	A8	A8	
		54	AF	AF	AF	AF	AF	
		5A	7A	7A	7A	7A	7A	
		5C	17	17	17	1B	1B	
		5D	32	32	32	34	34	
		5E	—	—	—	24	24	
		60	15	15	15	—	—	
		61	BA	BA	BA	A7	A6	
		62	C3	C3	C3	—	—	
		63	B2	B2	B2	B3	B5	
		64	1A	1A	1A	38	2E	
		65	00	00	00	—	—	
		67	01	01	01	—	—	
		68	6B	6B	6B	—	—	
		6B	6C	6C	6C	—	—	
		6C	5C	5C	5C	—	—	
		72	20	20	20	—	—	
		74	3C	3C	3C	—	—	
		76	00	80	80	80	00	
		78	E0	E0	E0	E8	E8	
		79	30	30	30	30	30	
		7A	10	10	10	10	10	
		7D	26	26	26	26	26	
		87	1F	1F	1F	—	—	
		88	20	20	20	—	—	
		89	32	02	02	02	—	
		8A	—	04	04	04	—	
		E4-EF	00	00	00	00	00	
		F5	A8	A8	A8	A8	A8	
		F6	5E	5E	5E	5E	5E	
		F7	A8	A8	A8	CC	CC	

8. 28 MHz crystal oscillator adjustment

Purpose: Adjusts 28 MHz crystal controlled oscillation for synchronizing clock.

Adjustment error: Loss of synchronization or loss of color.

Subject	Note required
Measurement Point	IC201 (54) pin
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	25
Specification	3579545±17Hz

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	25		Change the data using PLAY, STOP buttons until the frequency satisfies the specification.
3	6	00	00	After setting the data, press the PAUSE button. (End)

Reference: Conversion between the hexadecimal number and decimal number.

In some adjustment items, data appears in hexadecimal numbers on the DDS display or on the adjustment remote commander. Maintenance engineers are expected to convert the displayed hexadecimal numbers to the corresponding decimal numbers using the following conversion table.

Make a required calculation described in each adjustment item. Then re-convert the result of calculation back from the decimal numbers to the corresponding hexadecimal numbers using the following conversion table.

Hexadecimal-Decimal Conversion Table

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (C)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(C)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : The characters shown in the parenthesis ( ) shows the display on the adjustment remote commander.
(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the hexadecimal number is B (b), and the lower digit is D (d), the meeting point "189" of (1) and (2) in the above table is the corresponding decimal number.

< How to convert the decimal number to hexadecimal number >

The decimal numbers are divided into following three categories. Calculation method is different in three categories respectively.

(1)0〜255	→	00h〜FFh
(2)256〜4095	→	0100h〜0FFFh
(3)4096〜65536	→	1000h〜FFFFh

If the decimal number fall into the category (1);

1) Divide the decimal number by 16. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A-B)×16. Result is "C".
4) "B" is the second digit number of the hexadecimal number and "C" is the first digit number of the hexadecimal number. (BC)h

(Example)

If the decimal number is "189";

1) $189 \div 16 = \underline{11}.8125$ ....(A)
 ↑
2) (B)
3) $(11.8125 - 11) \times 16 = 13$ ....(C)
4) 189 → (BD)h is obtained.

If the decimal number fall into the category (2);

1) Divide the decimal number by 256. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A-B)×256. Result is "C".
4) Take the integer portion of the number "C" as "D".
5) Calculate the equation (C-D)×16. Result is "E".
6) "B" is the third digit number, "D" is the second digit number and "E" is the first digit number of the hexadecimal number. (BDE)h

(Example)

If the decimal number is "2100";

1) $2100 \div 256 = \underline{8}.203125$ (A)
 ↑
2) (B)
3) $(8.203125 - 8) \times 256 \div 16 = \underline{3}.25$ ....(C)
 ↑
4) (D)
5) $(3.25 - 3) \times 16 = 4$ ....(E)
6) 2100 → (834)h is obtained.

If the decimal number fall into the category (3);

1) Divide the decimal number by 4096. Result is "A".
2) Take the integer portion of the number "A" as "B".
3) Calculate the equation (A−B) × 4096 ÷ 256. Result is "C".
4) Take the integer portion of the number "C" as "D".
5) Calculate the equation (C−D) × 256 ÷ 16. Result is "E".
6) Take the integer portion of the number "E" as "F".
7) Calculate the equation (E-F)×16. Result is "G". (Round the number "G" to count fractions of 0.5 and over as a unit and cut away the rest.)
8) "B" is the fourth digit number, "D" third digit number, "F" is the second digit number and "G" is the first digit number of the hexadecimal number. (BDFG)h

(Example)

If the decimal number is "31814";

1) $31814 \div 4096 = \underline{7}.7670898$ ....(A)
 ↑
2) (B)
3) $(7.7670898 - 7) \times 4096 \div 256 = \underline{12}.273436$ ....(C)
 ↑
4) (D)
5) $(12.273436 - 12) \times 256 \div 16 = \underline{4}.374976$ ....(E)
 ↑
6) (F)
7) $(4.374976 - 4) \times 16 = 5.999616$
 (Round the number to count fractions of 0.5 and over as a unit and cut away the rest.)
 ↓
8) 6..............................(G)
9) 31814 → (7C46)h is obtained.

< How to convert the hexadecimal number to decimal number >

If the hexadecimal number is (ABCD)h, the decimal number is calculated by the following equation.

$(A \times 4096) + (B \times 256) + (C \times 16) + (D \times 1) = \text{decimal number}$

(Example) If the hexadecimal number is "(3BA4)h":

$(3 \times 4096) + (11 \times 256) + (10 \times 16) + (4 \times 1) = 15268$

9. HALL adjustment

Purpose: Variation of the HALL element outputs is removed by adjusting amplifier gain and offset. The HALL elements detect the lens iris position.

Adjustment error: Oscillation of lens iris, or incorrect white balance indoor and outdoor.

Subject	Not required
Measurement Point	DDS display on the EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2A 2B
Specification	13 to 17h when iris is opened. 77 to 7Bh when iris is closed.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	02	21	After setting the data, press the PAUSE button.
3				Turn off the UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	02	03	After setting the data, press the PAUSE button.
6	6	01	03	After setting the data, press the PAUSE button.
7	F	2A	40	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W_2.
8	F	2A	30	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is W_1.
9	6	01	01	After setting the data, press the PAUSE button.
10	F	2A	30	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is K_1.
11	F	2A	40	After setting the data, press the PAUSE button. Read the data appearing on the DDS display note. The read-out data is K_2.
12				Convert the data W_1, W_2, K_1 and K_2 into the decimal numbers. The result decimal numbers are W_1', W_2', K_1' and K_2'. (Use the < How to convert the hexadecimal number to decimal number > or "Hexadecimal-Decimal Conversion Table".Calculate the following equation (decimal number calculation) to obtain X_1'.
13				$A' = W_2' + K_1' - W_1' - K_2'$ ....equation 1 $B' = W_1' - K_1'$ ....equation 2 $X_1' = \frac{1600 + (48 \times A') - (16 \times B')}{A'}$ ....equation 3
14				Convert the decimal number X_1' to the hexadecimal number to obtain X_1. (Round the number X_1 to count fractions of 0.5 and over as a unit and cut away the rest.)
15	F	2A		Set the data X_1 (obtained at step 14).
16				Press the PAUSE button.
17	F	2B		Change the data using the PLAY and STOP until 15 appears on the DDS display.
18				Press the PAUSE button.
19	6	01	03	After setting the data, press the PAUSE button.
20				If the DDS display shows the data in the range from 77 to 7B, it indicates the end of adjustment, and proceed to the item "Processing after Adjustments". If it is not, use the DDS display data as W0 and proceed to step 21 and followings.

Note : Lower two digits of the data which is displayed at the right bottom of he EVF or TV monitor

Order	Page	Address	Data	Procedure
21				Convert the value W0 to a decimal value to obtain the value W0'.
22				Calculate the value X_2' from the following equation (decimal calculation). $C' = W_0'+K_1'-W_1'-20$ ....equation 4 $X_2' = \frac{(100-B')\times(X_1'-48)+(48\times C')}{C'}$ ....equation 5 (The values X1' and B' are obtained from the equations 2 and 3 in step 13.)
23				Convert the value X2' to a hexadecimal number to obtain X2. (Round the number X2 to count fractions of 0.5 and over as a unit and cut away the rest.)
24	F	2A		Set the data X2 (which is the result of calculation in step 23).
25	F	2A		Press the PAUSE button.
26	F	2B		Change data using PLAY and STOP button until 79 appears on the DDS display.
27	F	2B		Press the PAUSE button.
28	6	01	01	After setting the data, press the PAUSE button.
29				Confirm that the DDS display shows the data in the range from 13 to 17.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	01	00	After setting the data, press the PAUSE button.
3	F	02	00	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button. (End)

Related adjustments:

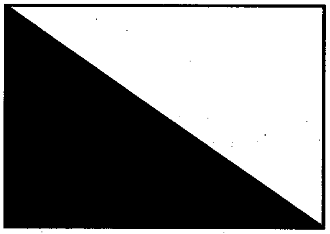
"IRIS IN/OUT adjustment"

10. Flange back adjustment

Purpose: Automatic flange back adjustment of inner focus lens.

Adjustment error: Loss of focus when switched between auto focus and manual focus.

Subject	Chart for flange back adjustment (Placed 2000 ±5 mm in front of the lens with illumination of 300 ±50 lux.)
Measurement Point	Confirm the focus on monitor TV.
Measuring Instrument	Confirm focus on monitor TV
Adjustment Page	F
Adjustment Address	3C 3D 3E 3F 40 41



(Chart for flange back adjustment)
(See Page 6-2)

Note : Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Check that the center of the flange back adjustment chart coincides with that of the display on the monitor at both ends: TELE end and the WIDE end of the zoom lens.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3				Confirm that the data at page F, address 1B is the initial value, referring to the "Page F address list".
4	6	11		Confirm that the data is 00.
5	6	42	02	After setting the data, press the PAUSE button.
6	6	43	01	After setting the data, press the PAUSE button.
7	6	01	13	After setting the data, press the PAUSE button.
8	6	01	15	After setting the data, press the PAUSE button. The adjustment data is automatically input to page: F, addresses: 3C to 41.
9	6	11		Confirm that the data is 01.

Processing after Adjustments:

Order	Procedure
1	Turn the main power supply (7.2 V) OFF, then ON. (If this step is not performed, the camera will be out of focus.)

11. Flange back check

Subject	Siemens star (Placed 2000 ±5 mm in front of the lens with illumination of about 200 lux.)
Measurement Point	Confirm focus on monitor TV
Measuring Instrument	
Specification Value	Picture must have good focus at both TELE and WIDE ends.

Note 1: Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

Note 2: It is judged from the page A display on the adjustment remote commander if the picture has good focus while the auto focus is ON.

1) Set data: 0B to the page:6, address: 02.
2) Focus condition can be known from the page A display.

A: 00 : XX

See the right table.

(Bit 2 value 0 : Picture is out of focus.
1 : Picture is in focus.)

Display on the adjustment remote commander	Bit values bit2
0	0
1	0
2	0
3	0
4	1
5	1
6	1
7	1
8	0
9	0
A(A)	0
B(b)	0
C(C)	1
D(d)	1
E(E)	1
F(F)	1

In focus

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Place a Siemens star at 2 meters in front of lens.
2				Decrease illumination to the chart down to a point before noise appears on monitor TV, in order to fully open the IRIS.
3				Shoot the Siemens star at TELE end.
4				Confirm that the image is in focus. (Note).
5	6	21	10	After setting the data, press the PAUSE button.
6				Shoot the Siemens star at WIDE end.
7				Confirm that the image is in focus.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	02	00	After setting the data, press the PAUSE button.
2	6	21	00	After setting the data, press the PAUSE button. (END)

12. Picture frame setting

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO output terminal (Terminated in 75 Ω)
Measuring Instrument	Oscilloscope and monitor TV
Specification Value	A=B, C=D, t=0 ± 0.1msec

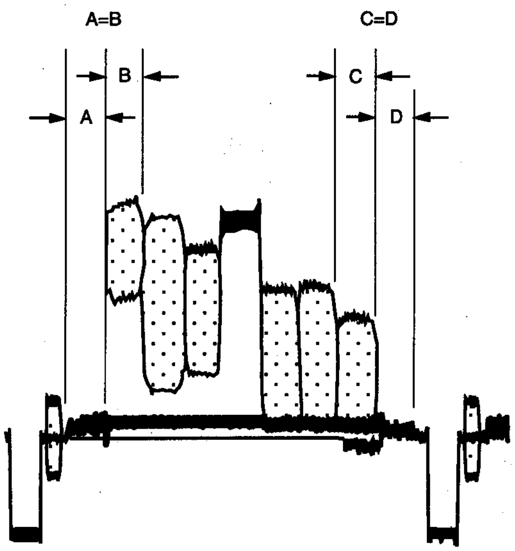
Note : Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

Setting procedure:

Order	Procedure
1	Turn OFF the auto focus.
2	Adjust the focus using the focus knob.
3	Adjust direction and zoom of camera so that the picture frame is adjusted as specified by Fig. 6-1-8 and Fig. 6-1-9.
4	Write down markings on the picture frame on the monitor screen. If the "color bar chart standard picture frame" or "white pattern standard picture frame" is specified in the following adjustment items, obtain this picture frame.

Confirm with an oscilloscope

1. Horizontal rate



2. Vertical rate

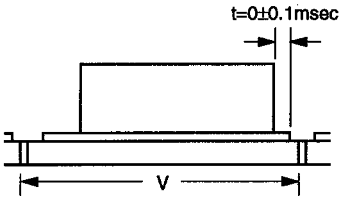


Fig. 6-1-8

Confirm on TV monitor (underscanned display)

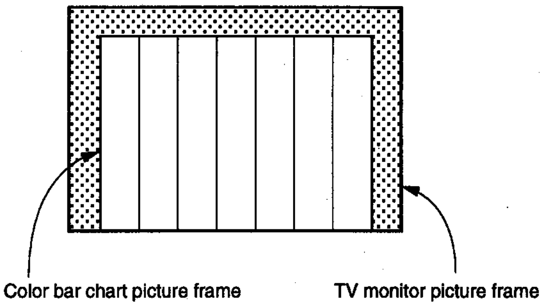


Fig. 6-1-9

13. Color reproduction adjustment

Purpose: Adjust the three primary color matrix coefficients for correct color reproduction.

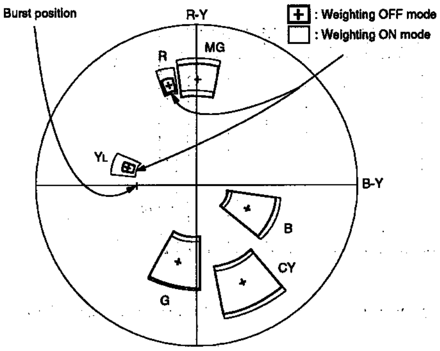
Adjustment error: Poor color reproduction.

Subject	Color bar chart standard picture frame
Measurement Point	VIDEO output terminal (Terminated in 75 Ω)
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	2D, 2E, 2F, 30
Specification Value	Each spot must be located within the specified color reproduction zone on a vectorscope display.

Note : Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

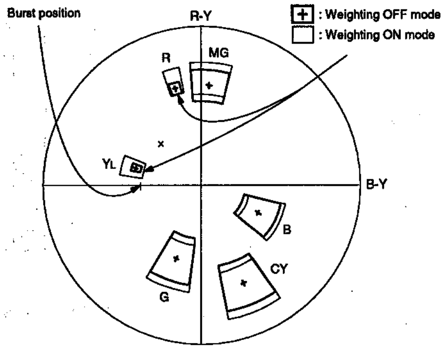
Adjustment procedure:

Order	Page	Address	Data	Procedure	Condition
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)	
2	6	03	00	After setting the data, press the PAUSE button. (Setting)	
3	6	01	37	After setting the data, press the PAUSE button.	
4	F	2D, 2E 2F, 30		Change the data so that each spot must be located within the specified color reproduction zone on a vectorscope display. Press the PAUSE button for each address.	Weighting OFF mode.



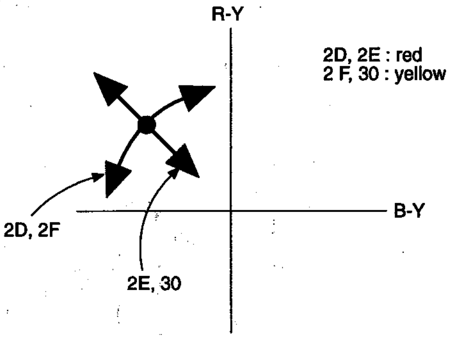
Burst position
R-Y
⊞ : Weighting OFF mode
☐ : Weighting ON mode
R
MG
YL
B-Y
B
CY
G

CCD-TR78/514/614/714
(MODEL W/O STEADY SHOT)



Burst position
R-Y
⊞ : Weighting OFF mode
☐ : Weighting ON mode
R
MG
×
YL
B-Y
B
CY
G

CCD-TR88/98/99/590/814
(STEADY SHOT MODEL)



R-Y
2D, 2E : red
2 F, 30 : yellow
B-Y
2D, 2F
2E, 30

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	03	10	After setting the data, press the PAUSE button. (Setting)
3	6	00	00	After setting the data, press the PAUSE button. (End)

Related Adjustments:

"Auto white balance reference data input"
"Auto white balance adjustment"

14. IRIS IN/OUT adjustment

Purpose: Measure the light level and write into EE PROM for indoor/outdoor identification in auto white balance.

Adjustment error: Incorrect white balance.

Subject	White pattern standard picture frame
Measurement Point	EVF or DDS display of monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3A 3B

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	02	21	After setting the data, press the PAUSE button.
3				Turn off the UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	11		Confirm that the date is 00,,
6	6	01	4B	After setting the data, press the PAUSE button.
7	6	01	49	After setting the data, press the PAUSE button.
8	6	11		If data is 01, this is the end of data read.

Note : Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	F	02	00	After setting the data, press the PAUSE button.
3				Turn off the UNREG power supply once, then turn it on.
4	6	00	00	After setting the data, press the PAUSE button. (End)

The page: A data appears on DDS of monitor TV.

15. MAX gain adjustment

Purpose: Sets the minimum illumination level.

Adjustment error: Normal video level cannot be obtained at low illumination (dark).

Subject	White pattern standard picture frame
Measurement Point	VIDEO output terminal (Terminated in 75 Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	2C
Specification Value	A =600 ± 10 mV

Note : Confirm that the "Camera-shaking connection" and "Digital Zoom" are turned Off.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	19	After setting the data, press the PAUSE button.
3	F	2C		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification. The data which satisfies the Y signal level (A) is called "D2c".
4	F	2C		Set the data "D2c" and press the PAUSE button.

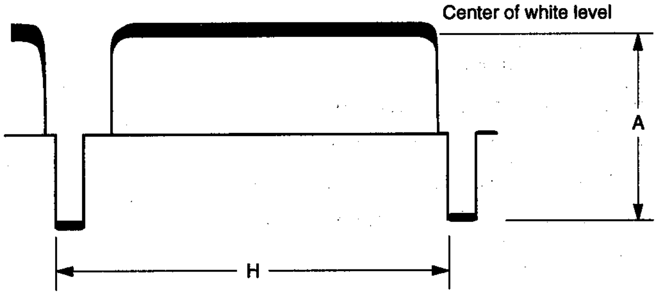


Fig. 6-1-10.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	00	00	After setting the data, press the PAUSE button. (End)

16. Auto white balance reference data input

Subject	White pattern standard picture frame
Adjustment Page	F
Adjustment Address	33, 34, 35, 36

Note 1: Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

Note 2: The "Color reproduction adjustment" must have been completed before making this adjustment.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Turn the main power OFF then to ON.
2				Shoot a white pattern with the standard picture frame.
3	6	00	01	After setting the data, press the PAUSE button.
4	6	11		Confirm that data is 00.
5	6	01	11	After setting the data, press the PAUSE button.
6	6	01	0D	After setting the data, press the PAUSE button. (Executes the auto white balance reference data input.)
7	6	11		If data is 01, this is the end of data read.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2				Execute "Auto white balance adjustment".
3	6	00	00	After setting the data, press the PAUSE button. (End)

Related Adjustments:

Auto white balance adjustment

17. Auto white balance adjustment

Purpose: Adjust for correct auto white balance.

Adjustment error: Poor color reproduction.

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14
Measurement Point Measuring Instrument	EVF or DDS display on monitor TV
Adjustment Page	F
Adjustment Address	38 39
Specification Value	R ratio 2A80±40h B ratio 5E80±80h

Note 1: Make this adjustment after "Auto white balance reference data input" is completed.

Note 2: Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation 1)
2	F	02	21	After setting the data, press the PAUSE button. (Preparation 2)
3				Turn off the UNREG power supply once, then turn it on.
4	6	00	01	After setting the data, press the PAUSE button.
5	6	01	35	After setting the data, press the PAUSE button.
6	6	02	04	After setting the data, press the PAUSE button. Sets the R ratio display mode.
7	F	38		Change data using the PLAY and STOP buttons until the R ratio data on the DDS display becomes the specification value. R ratio data = 2000h+10h×D_{F5} (D_{F5} = Page F, Address: F5 data)
8	6	02	05	After setting the data, press the PAUSE button. Sets the B ratio display mode.
9	F	39		Change data using the PLAY and STOP buttons until the B ratio data on the DDS display becomes the specification value. B ratio data = 80h+100h×D_{F6} (D_{F6} = Page F, Address: F6 data)
10				Press the PAUSE button.

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	02	00	Releases the B ratio display mode.
3	F	02	00	After setting the data, press the PAUSE button. (End 2)
4				Turn off the UNREG power supply once, then turn it on.
5	6	00	00	After setting the data, press the PAUSE button. (End 1)

18. White balance check

Subject	White pattern standard picture frame
Filter	Color temperature correction filter C14 ND filter 1.0 and 0.3
Measurement Point	VIDEO output terminal (Terminated in 75Ω)
Measuring Instrument	Vectorscope
Specification Value	Fig. 6-1-11. A ~ C

Note : Confirm that the "Camera-shaking correction" and "Digital Zoom" are turned Off.

Check procedure:

Order	Page	Address	Data	Procedure	Condition
1				Check that the lens is not covered by either filter.	
2	6	01	0F	After setting the data, press the PAUSE button.	
3				Check that the white luminance point is located within the circle shown in Fig. A.	Without filter.
4	6	01	00	After setting the data, press the PAUSE button.	
5	6	01	23	After setting the data, press the PAUSE button.	
6				Put the C14 filter on the lens.	
7				Check that the white luminance point is located within the circle shown in Fig. B.	C14 filter.
8				Remove the C14 filter and put ND filter 1.3 (1.0 + 0.3) on the lens.	
9				Check that the white luminance point is located within the circle shown in Fig. C.	ND Filter 1.3

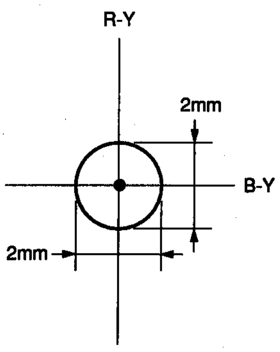


Fig. 6-1-11. A

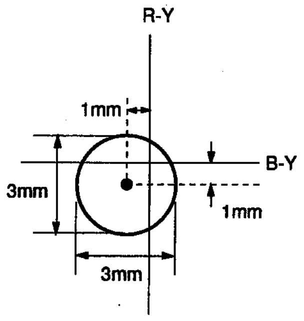


Fig. 6-1-11. B

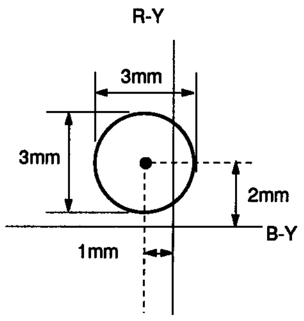


Fig. 6-1-11. C

Processing after Adjustments:

Order	Page	Address	Data	Procedure
1	6	01	00	After setting the data, press the PAUSE button.
2	6	00	00	After setting the data, press the PAUSE button.

〔STEADY SHOT MODEL〕

19. Camera-shaking correction adjustment

The "Camera-shaking correction adjustment" is necessary only when the angular speed sensor is replaced. If microprocessors or circuit is replaced or repaired, this adjustment is not necessary. Make operation check only.

Subject	
Measurement Point	VIDEO output terminal (Terminated in 75 Ω)
Measuring Instrument	Oscilloscope or TV monitor
Adjustment Page	F
Adjustment Address	42 43
Specification Value	Horizontal residual vibration ≦0.5μsec Vertical residual vibration ≦0.2msec

Note 1: Caution when replacing parts

The two types of parts: ENC05EA and ENC05EB are supplied. Use the same type of sensor as that of the defective sensor. If different type of either ENC05EA or ENC05EB is used, picture can vibrate vertically or horizontally during camera-shake correction. After replacement, make adjustment as described.

Note 2: Caution on angular speed sensor

The angular speed sensor has high precision vibrator inside. If the sensor is dropped, balance of the vibrator is lost resulting in faulty operation. Handle the sensor carefully.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	42	07	After setting the data, press the PAUSE button.
3	6	01	3F	After setting the data, press the PAUSE button.
4				Obtain the vertical data from the following equation using the value indicated on SE650 of the TZ-5 board as the sensor sensitivity value. (Result of calculation must be converted to hexadecimal value.) $[\text{Vertical data}]\ \text{Hex} = \frac{148d}{\text{sensor sensitivity value}} \times [\text{Hex}]$
5	F	42		Set the [Vertical data] Hex value to the page F, address 42 and press the PAUSE button.
6				Obtain the horizontal data from the following equation using the value indicated on SE651 of the TZ-5 board as the sensor sensitivity value. (Result of calculation must be converted to hexadecimal value.) $[\text{Horizontal data}]\ \text{Hex} = \frac{121d}{\text{sensor sensitivity value}} \times [\text{Hex}]$
7	F	43		Set the [Horizontal data] Hex value to the page F, address 43 and press the PAUSE button.
8				Confirm that "Camera-shaking correction adjustment" works correctly.
9	6	00	00	After setting the data, press the PAUSE button. (End)
10	6	42	00	After setting the data, press the PAUSE button.
11	6	01	00	After setting the data, press the PAUSE button.

Note : Phase of the residual vibration must be in the same phase as that while no correction is applied.

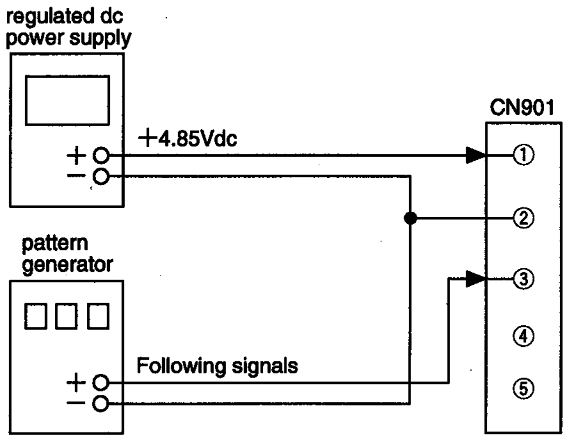
〔B/W EVF MODEL〕

20. Electronic viewfinder system adjustments (VF-102 board)

Note : About 2200V dc is applied to CRT anode and about 200 Vdc to the grid. Be careful not to touch them. If hand touches them, there is danger of electric shock.

Preparation :

1. Disconnect a flexible board from CN901 on VF-87 board.
2. Connect equipments as follows.



Required signals

1. Monoscope signal

Output amplitude:	1.0 V p-p (75Ω terminated)
Horizontal resolution:	600 TV lines or more
Vertical resolution:	350 TV lines or more

2. Dot pattern signal

Output amplitude	1.0 V p-p (75Ω terminated)

3. Contrast signal

Output amplitude	0.5 V p-p (75Ω terminated)
fH:	15.750kHz
fV:	60Hz

Others: Complies with NTSC. (Refer to Fig. 6-1-12.)

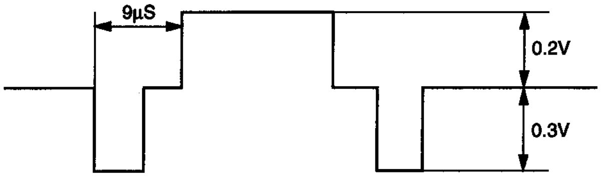


Fig. 6-1-12

20-1. Power supply voltage check

Measuring Instrument	Digital voltmeter
EVF5V	
Measurement Point	CN901 Pin-1
Specification Value	4.85±0.01Vdc

20-2. Horizontal and vertical position

Purpose: Maintains horizontal position.

Adjustment error: Horizontal position cannot be maintained.

Signal	Monoscope signal
Adjustment	
Specification Value	Overscan 7±3% (horizontal) (one side) Overscan 7±5% (vertical) (one side)

Adjustment procedure:

Order	Procedure
1	Confirm that the horizontal and vertical picture sizes satisfy the specification values.

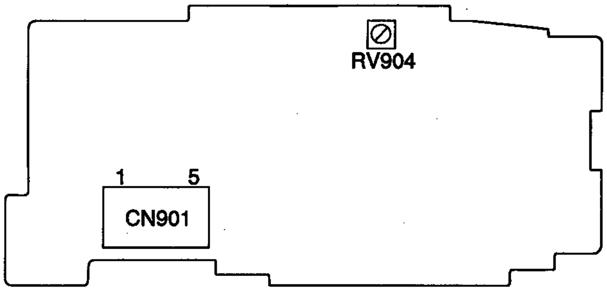
20-3. BRIGHT adjustment

Signal	Contrast signal
Adjustment	RV904
Specification Value	19±4cd/m²

Adjustment procedure:

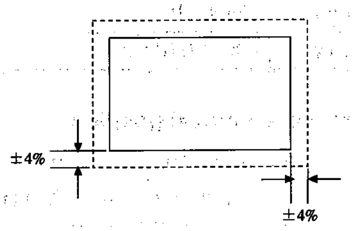
Order	Procedure
1	Brightness of the dark portion of the contrast signal satisfies the specification value.
2	heck by inputting the character generator signal that too much halation does not exist.

VF-102 BOARD (SIDE A)



20-4. Centering adjustment

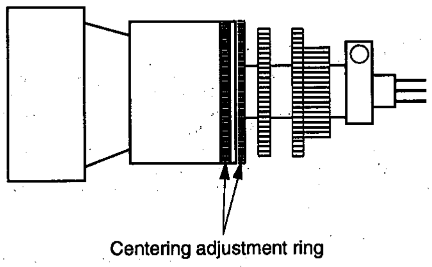
Signal	Monoscope signal
Adjustment	DY centering
Specification Value	±4%



Adjustment procedure:

Order	Data Procedure
1	Adjust DY centering adjustment ring so that margins at top, bottom, right and left are equal.

Note : The centering position is affected by earth magnetism. Rotate the camera 360 degrees and find the amount of centering change. Make the adjustment to the center of the change.



20-5. Focus adjustment

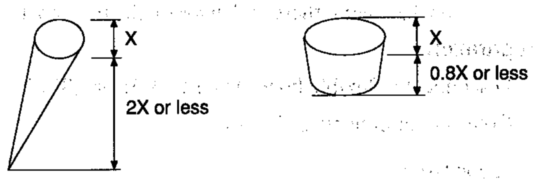
Signal	Monoscope signal
Adjustment	DY focus ring
Specification Value	Horizontal resolution is 350 lines or more.

Adjustment procedure:

Order	Procedure
1	Adjust focus ring for optimum focus. Confirm that the horizontal resolution satisfies the specification.

20-6. Diffraction adjustment

Signal	Dot pattern, Monoscope signal
Adjustment	DY diffraction adjustment ring
Specification Value	Refer to the illustration below.



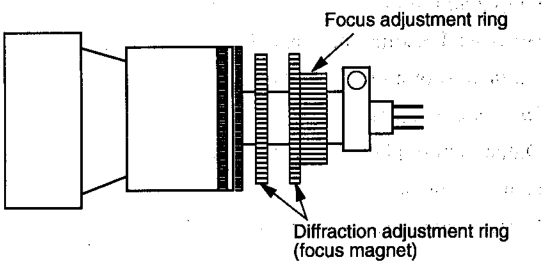
Adjustment procedure:

Order	Procedure
1	Adjust the diffraction adjustment ring so that tail of a dot must be smaller than 2 times of dot diameter, or the fan-shaped diffraction must smaller than the dot diameter.
2	If the focus and centering are affected by this adjustment, input monoscope signal and repeat focus and centering adjustments.

Related Adjustments:

Focus adjustment

Centering adjustment



〔SOLAR COLOR/COLOR EVF MODEL〕

21. Electronic viewfinder system adjustments (VF-101/VF-93, VF-100/VF-94 board) * : NOTE

There are no adjustment point in color viewfinder circuit board. If any circuit board becomes defective, exchange the circuit board. When exchanging circuit board, exchange the VF-100/VF-94, VF-101/VF-93 and LB-46/LB-44 boards as a pair at the same time.

Note 1: The backlight (fluorescent lamp is driven by a 700 Vp-p, 62 kHz AC power supply.
Therefore, be careful not to touch the back light holder with hand or you will receive an electric shock.

Note 2: When replacing the LCD unit, be careful not to damage the LCD unit with static electricity.

[Adjustment connector]

Most measurement points of the viewfinder check are concentrated at the CPC of the VF-100/VF-94 board. Connect the measuring equipment to the CPC via the measuring pin tool. The following table shows the pin numbers and signal names of the CPC.

CN902 (VF-100/VF-94 BOARD) * : NOTE

Pin No.	Signal name	Pin No.	Signal name
1	LC COM	2	EVF GND
3	G OUT	4	13.5V
5	NC	6	12V
7	R OUT	8	B OUT
9	SLYT	10	PCO

Measuring pin tool for LCD Parts code: J-6082-192-A

[Power supply voltage check]

Adjust the power supply voltage to be input to the battery terminal so that the voltage across VF-101/VF-93 board CN851 pins ⑦ (EVF UNREG) and pins ⑩ (EVF GND) is 7.2±0.1 Vdc.

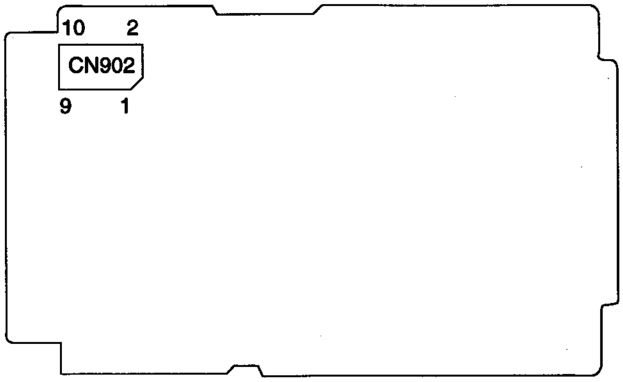
Power supply voltage check (VF-101/VF-93 board) * : NOTE

Subject	Any subject
Measuring Instrument	Digital voltmeter
EVF 4.9V	
Measurement Point	CN851 Pin ⑨
Specification Value	4.8±0.1Vdc
EVF 15V	
Measurement Point	CN851 Pin ⑧
Specification Value	15±0.2Vdc

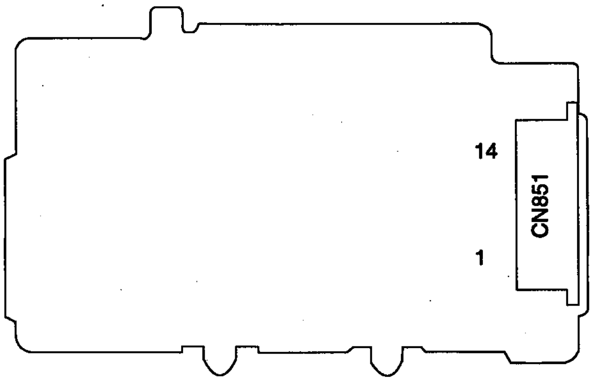
* : NOTE

COLOR	SOLAR COLOR
VF-94	VF-100
VF-93	VF-101
LB-44	LB-46

VF-100/VF-94 BOARD (SIDE A) * : NOTE

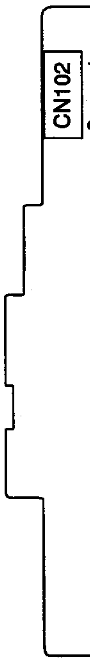


VF-101/VF93 BOARD (SIDE A) * : NOTE

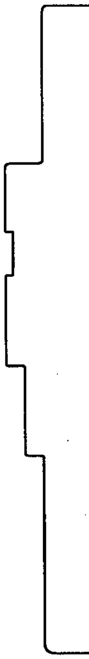


ARRANG

VC-167 E

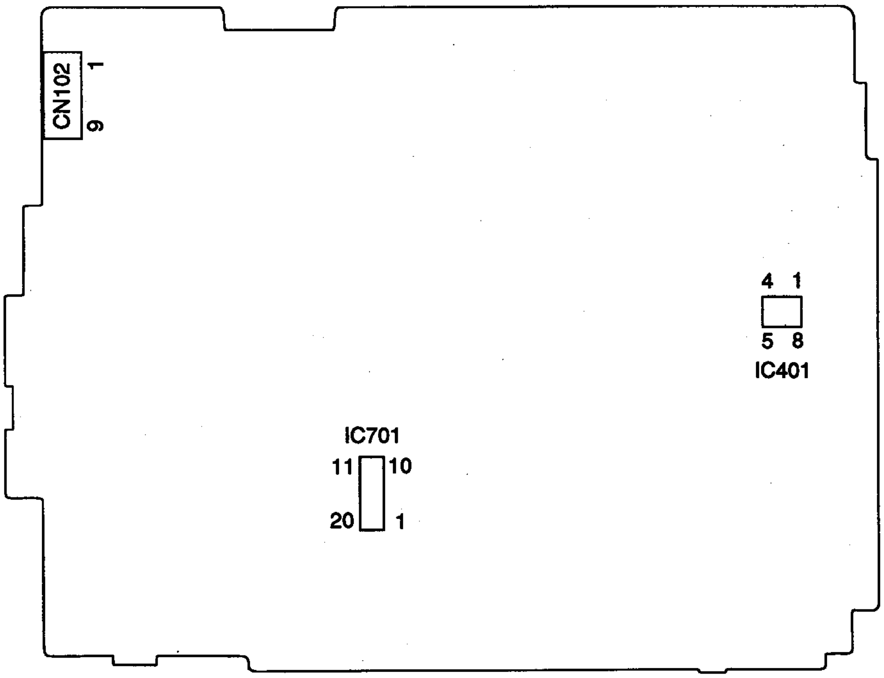


VC-167 I

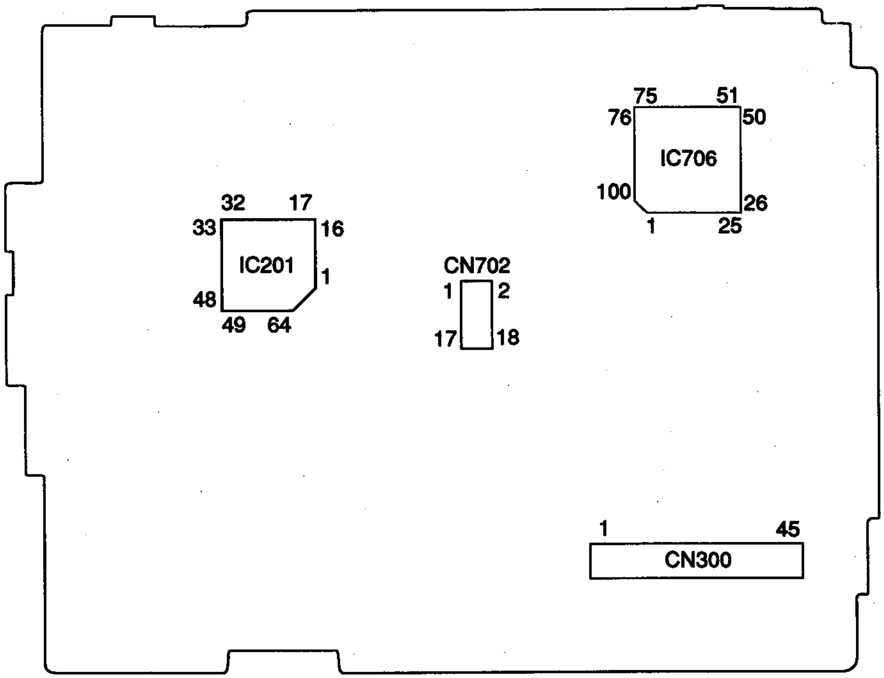


ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-167 BOARD (SIDE A)


CN102
1
9
4 1
5 8
IC401
IC701
11
10
20
1

VC-167 BOARD (SIDE B)


75
51
76
50
IC706
100
26
1
25
32
17
33
16
IC201
1
48
49
64
CN702
1
2
17
18
1
45
CN300

6-2. MECHANISM SECTION ADJUSTMENTS

Refer to the separate "8 mm Video Mechanism Section Adjustment Manual Ⅶ B Mechanism " for adjustment, check procedure and mechanical parts replacement.

2-1. HOW TO OPERATE THE MECHANISM AFTER THE CASSETTE COMPARTMENT IS REMOVED

1. How to load a cassette tape:

1) Refer to "1. Disassembly" and turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
3) Check that the main power is being supplied.
4) Select page: 6, address: 00, set data :01 and press the PAUSE button.
5) Select page: F, address: 02, set data: 01 and press the PAUSE button.
6) Turn off the power supply once, then turn it on.
7) Set the NORM - ADJUST (HOLD) switch to NORM (OFF) position. (The adjustment remote commander can be disconnected hereafter.)
8) Press the push-switch-1 knob in the direction of arrow which sets the machine into loading mode.

★ PB, FF/REW and CUE/REV operations are possible.

9) After completing all steps of above operation, be sure to perform "4. Processing after operation".

2. How to establish RECORD mode:

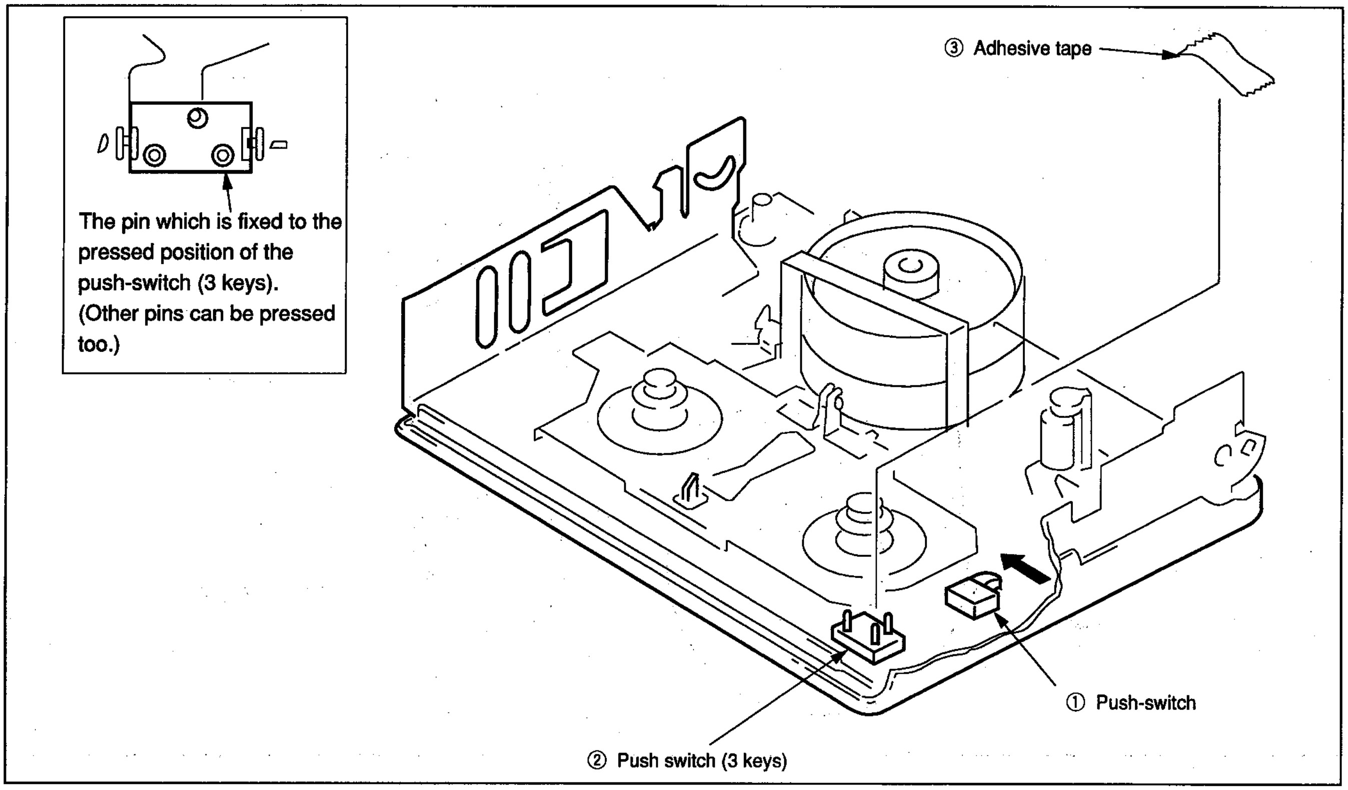
1) Press pin of the push-switch 2 (ON state) and keep the ON state by fixing with adhesive tape.
2) Turn the main power switch ON (select VTR or CAMERA position of camera).
3) Set the RECORD switch to ON.
   (When the test mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

4. Processing after operation

1) Connect the adjustment remote commander and set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
2) Select page 6, address: 00, set data: 01 and press the PAUSE button.
3) Select page: F, address: 02, set data: 00 and press the PAUSE button.
4) Remove the power supply to the machine.


The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)
③ Adhesive tape
① Push-switch
② Push switch (3 keys)

2-2. TAPE PATH ADJUSTMENT

Purpose: Adjusts the head linearity.

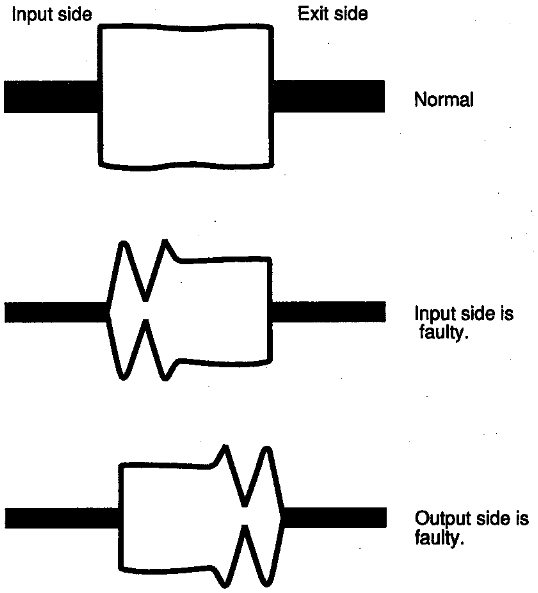
Adjustment Error: Noise appears on top and bottom of display when playing back the tape recorded by other machines.

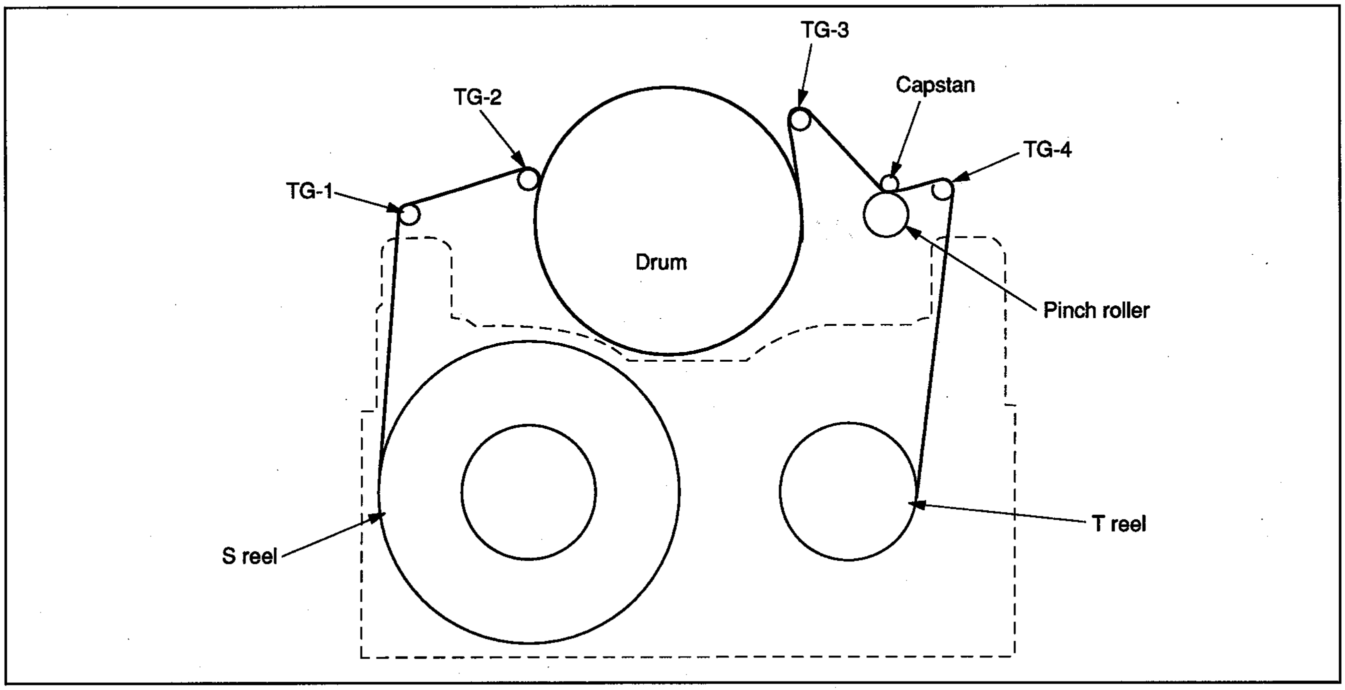
1. Preparations for adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Set the NORM - ADJUST (HOLD) switch to ADJUST (ON) position.
4) Check that the main power is being supplied.
5) Select page: 6, address: 00, set data :01 and press the PAUSE button.
6) Select page: F, address: 02, set data: 03 and press the PAUSE button.
7) Turn off the power supply once, then turn it on.
8) Connect an oscilloscope.
   CH1: VC-167 board CN102 pin ①.
   External trigger: VC-167 board CN102 pin ⑧.
9) Playback the tracking alignment tape (WR5-1NP).
10) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat. Tape Path Adjustment" of the 8 mm Video Mechanism Section Adjustment Manual Ⅶ [B Mechanism].
11) After completing the adjustment, perform "2-1-4. Processing after operation".

VC-167 board CN102

1	PB RF
2	REC 2
3	GND
4	EMPH IN
5	CAM Y IN
6	DEEMPH OUT
7	BPF ADJ
8	RF SWP
9	CAP FG





6-3. VIDEO SECTION ADJUSTMENT

> When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6-64.

Perform the video section adjustment in the sequence as described.

[Adjustment sequence]

1) Servo system adjustment
    1.SYNC LEVEL/BURST LEVEL adjustment.
    2.Switching position adjustment
    3.Capstan FG offset adjustment
2) Playback frequency response characteristics adjustment
3) DEMD OUT adjustment
4) YD OUT LEVEL adjustment
5) Chroma level check
6) PB Y level adjustment
7) FE OSC check
8) Emphasis input level adjustment
9) Y FM deviation adjustment
10) Y FM carrier frequency adjustment
11) Chroma emphasis fo adjustment
12) REC Y level adjustment
13) REC L level adjustment
14) REC C level adjustment

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following measuring equipment are used for video section adjustment.

3-1-1. Equipment required

1) Monitor TV
2) Oscilloscope, dual trace, 30 MHz bandwidth or more with delay mode function.
   (Use 10:1 probe unless otherwise specified.)
3) Frequency counter
4) Digital voltmeter
5) Audio generator
6) Audio level meter
7) Audio distortion meter
8) Audio attenuator
9) Regulated power supply
10) Alignment tape
    - For tracking adjustment (WR5-1NP)
      Parts code: 8-967-995-02
    - For normal mode video frequency response adjustment (WR5-6N)
      Parts code: 8-967-995-12
    - For confirmation of normal mode operation
      for SP (WR5-5NSP)
      Parts code: 8-967-995-42
      or (WR5-4NSP)
      Parts code: 8-967-995-41
      for LP (WR5-4NL)
      Parts code: 8-967-995-51
      for checking AFM stereo operations (WR5-9NS)
      Parts code: 8-967-995-23

3-1-2. Precautions on adjustment

The EVF (electronic viewfinder) is not necessary for video section adjustment.
Remove the following connector to remove the EVF.
1. CF-43 board CN481 (pin-8)

The audio board (MA-238) board is not necessary except for "Audio System Adjustments". Remove the following connectors.
1. VC-167 board CN060 (pin-12)

After completing all adjustments, release the adjustment mode by either of the following two methods.

1) Remove the lithium battery. (In this case, data time and menu setting by users are erased. Input these data again.)
2) Return the data of the address: 00 on page:6 to 00. If the page: 2 data is changed, return the data to the original value.

3-1-3. Adjustment connector (VC-167 Board CN102)

Some video section adjustment points are concentrated to the VC-167 board CN102. Connect the measuring equipment via the tool (Multi CPC: J-6082-311-A).

VC-167 BOARD (CN102)

Pin No.	Signal Name
1	PB RF
2	REC 2
3	GND
4	EMPH IN
5	CAM Y IN
6	DEEMPH OUT
7	BPF ADJ
8	RF SWP
9	CAP FG

3-1-4. Equipment connection

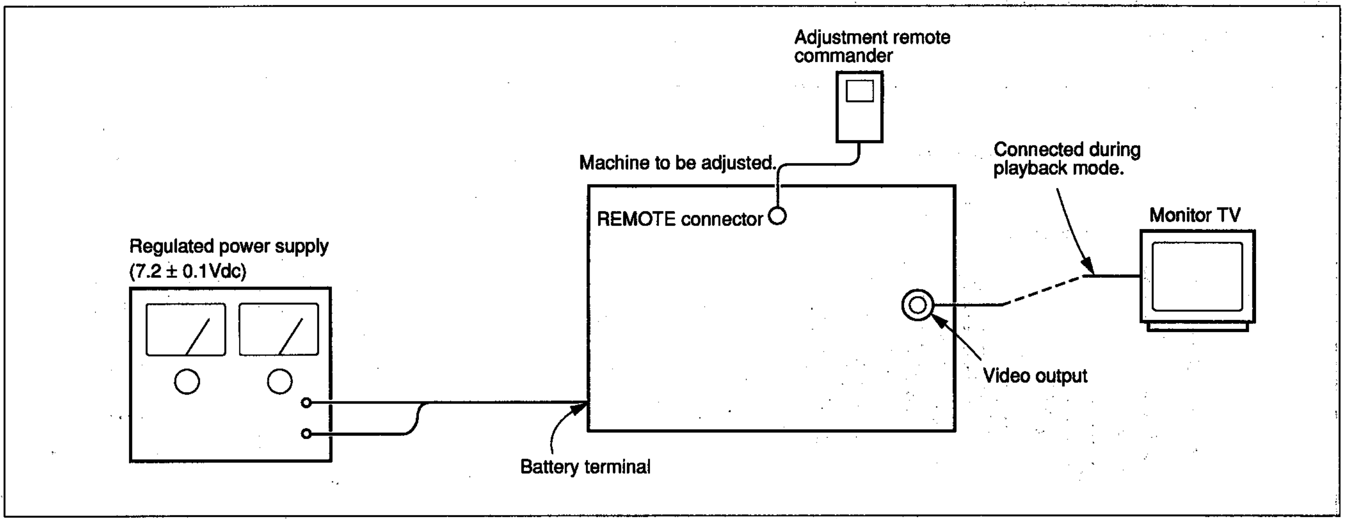

Adjustment remote commander
Machine to be adjusted.
Connected during playback mode.
REMOTE connector
Monitor TV
Regulated power supply (7.2 ± 0.1Vdc)
Video output
Battery terminal

Fig.6-3-1.

3-1-5. Alignment tape

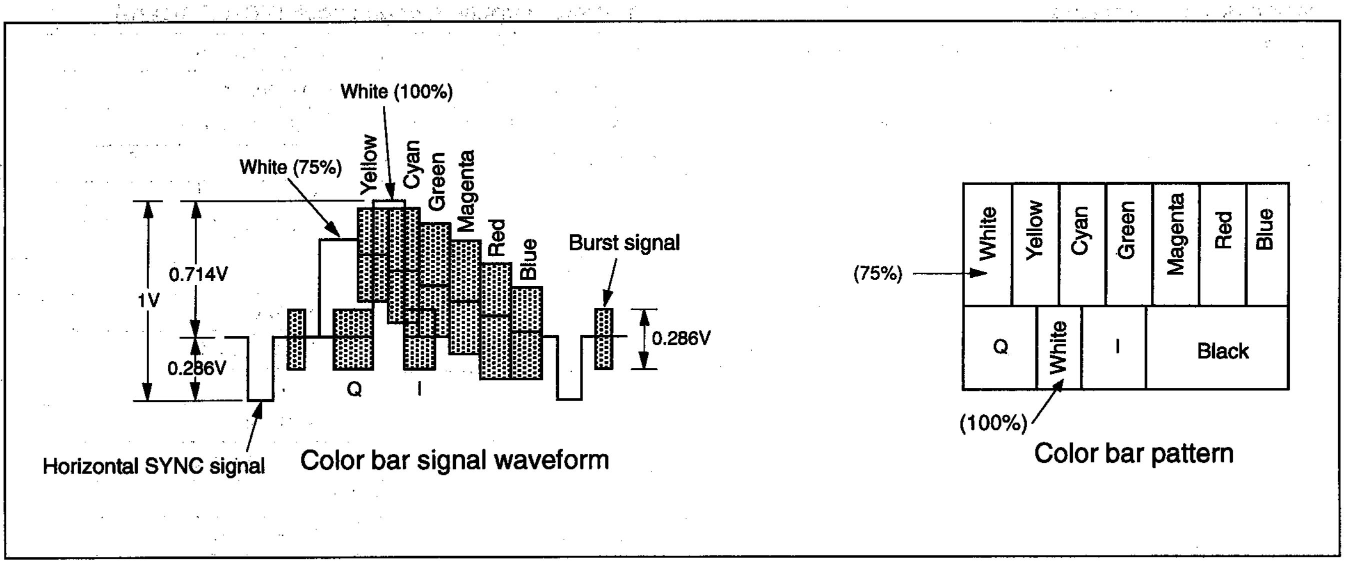
The following table shows the alignment tapes available.
Use the tape specified in the signal column for each adjustment.
If tape type is not specified in the adjustments which use the "Operation Check" tape, use any type of tape for the checking purpose.

Name	Record Mode	Tape Type	Tape Speed	Use
Tracking WR5-1NP	Normal	MP	SP	Tape path adjustment Switching position adjustment
Video frequency response adjustment WR5-6N	Normal	MP	SP	Frequency response adjustment
Operation check (SP mode) WR5-5NSP	Normal	MP	SP	Operation check
Operation check WR5-4NL	Normal	MP	LP	
AFM stereo checking operations WR5-9NS	Normal	MP	SP	AFM stereo checking operations

Note : Tape type
MP — Metal particle tape

The color bar signal which is recorded in the alignment tape.

Note : Measured at video input/output connector (across 75 Ω termination).


White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
0.714V
1V
0.286V
Q
I
0.286V
Horizontal SYNC signal
(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Q
White
I
Black
(100%)

Color bar signal waveform

Color bar pattern

Color bar signal of alignment tape

3-1-6. Output level and impedance

Video output	Pin jack Output signal: 1 V p-p, 75 Ω unbalanced, sync negative
Audio output	Pin jack Input level: -7.5 dBs (across 47 kΩ load)) Output impedance: 2.2 kΩ or less

3-2. ADJUSTMENT POINTS WHEN MAJOR PARTS ARE REPLACED

1. When drum is replaced:

"Tape Path Position Adjustment" of mechanical section adjustment

"PB RF frequency response characteristics adjustment" of the video section adjustment

"Switching position adjustment" of the servo section adjustment

3-3. POWER SUPPLY SYSTEM ADJUSTMENT

1. Power supply voltage check (VC-167 board)

Mode	Camera record
Subject	Any subject
Measuring Equipment	Digital voltmeter
MT5V check	
Measuring Point	CN300 pin㊱
Specification Value	5.0 ± 0.15Vdc
DIG 3V check	
Measuring Point	CN300 pin㉚
Specification Value	3.16 ± 0.1Vdc
AU 3 V check	
Measuring Point	CN501 pin⑤
Specification Value	3.18 ± 0.1Vdc
EVF 5V check (camera mode)	
Measuring Point	CN300 pin㊶
Specification Value	4.85 ± 0.15Vdc
EVF15 V check	
Measuring Point	CN300 pin㊵
Specification Value	14.95 ± 0.4Vdc

2. VTR & CAM mode ON

Mode	Stop
Signal	Any signal
Adjustment Page	F
Adjustment Address	02

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Set the remote commander (RM-95) to HOLD (adjustment position), and turn on the UNREG power supply.
2	6	00	01	After setting the data, press the PAUSE button.
3	F	02	03	After setting the data, press the PAUSE button.
4				Turn off the UNREG power supply once, then turn it on.

How to cancel the VTR &CAM mode ON.

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button.
2	F	02	00	After setting the data, press the PAUSE button.
3				Turn off the UNREG power supply once, then turn it on.

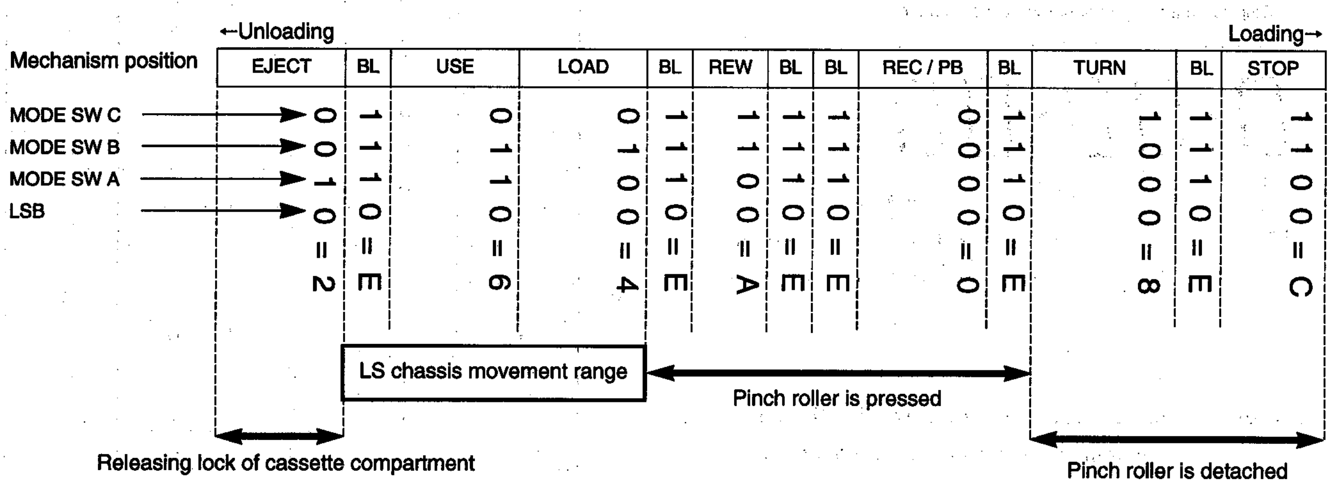
3. EMG code (Emergency code)

The emergency codes are stored in the addresses: E4, E8 and EC corresponding to the type of errors occurred. Types of error code are shown in the following table.

Code	Error Status
00	No error
10	Loading motor error during loading
11	Loading motor error during unloading
20	T reel error during unloading
21	S reel error during unloading
22	T reel error in normal mode
23	S reel error in normal mode
30	FG error during capstan startup
31	FG error during capstan normal speed
40	FG error during drum startup
41	PG error during drum startup
42	FG error during normal rotation of drum
43	Not used
44	Phase error during normal rotation of drum

4. MSW code

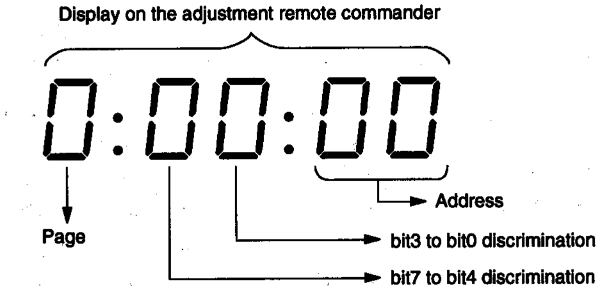
- The lower digit data of the page F: address: E6, EA and EE indicate the MSW code (mode switch code) when an error occurs.
- The upper digit data of the page F: address: E6, EA and EE indicate the MSW code (mode switch code) of mode transition (mode SW code before mode transition) when an error occurs.
- The lower digit data of the page F: address: E7, EB and EF indicate the MSW code (mode switch code) of transition target (code to which the machine is going to enter) when an error occurs.


←Unloading
Loading→
Mechanism position
EJECT
BL
USE
LOAD
BL
REW
BL
BL
REC / PB
BL
TURN
BL
STOP
MODE SW C
MODE SW B
MODE SW A
LSB
0010 = 2
1110 = E
0110 = 6
0100 = 4
1110 = E
1100 = A
1110 = E
1110 = E
0000 = 0
1110 = E
1000 = 8
1110 = E
1100 = C
LS chassis movement range
Pinch roller is pressed
Releasing lock of cassette compartment
Pinch roller is detached

Mechanism Position	MSW Code	Detail of Content
EJECT	2	The position where the cassette compartment lock is released.The end position in the unthread-end direction. The mechanism does not move any more in the direction of unloading direction.
BL	E	Blank code. The code which separates a code from another code. The machine does not stop at the code while is it operating.
USE	6	EJECT completed position. If a cassette is ejected, it stops at this position. If mechanism moves in the loading direction, the TG1 guide and the TG9 guide start moving.
LOAD	4	The code during loading and unloading. This code is output while the LS chassis is moving.
REW	A	REW position. The position to activate the REW and FR/REV.
RP	0	PB, REC, CUE REV and PAUSE position. The pinch roller is pressed and the tension regulator is turned ON.
TURN	8	The position which is used to move the swing gear from S to T or from T to S.Normal STOP position.
STOP	C	The pinch roller is detached, tension regulator is turned OFF, and both reels are braked. Mechanism does not move any more in the loading direction.

5. Bit value discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.


Display on the adjustment remote commander
0:00:00
Page
Address
bit3 to bit0 discrimination
bit7 to bit4 discrimination

(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the Adjustment Remote Commander	Bit value			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A(A)	1	0	1	0
	B(b)	1	0	1	1
	C(C)	1	1	0	0
	D(d)	1	1	0	1
Ⓑ	E(E)	1	1	1	0
	F(F)	1	1	1	1

6. Initializing the emergency code area

(Caution) Perform the initializing operation only when the past emergency codes can be deleted.

Operating procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	11	00	After setting the data, press the PAUSE button.
3	6	01	4D	After setting the data, press the PAUSE button.
4	6	11	01	After setting the data, press the PAUSE button.
5	F	E4~EF	00	After setting the data, press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)

7. LED check

Data	Operation
00	Normal
10	Tally LED lights.

Operating procedure:

Order	Page	Address	Date	Procedure
1				Turn CAM POWER ON.
2				Check LED.
3	2	00	00	After setting the data, press the PAUSE button.
4	2	A0	10	Tally LED light.

8. Key input check

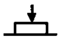
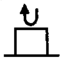
Bit	Key Switch	Switch Condition
0	Date (+)	“1” =OFF “0” =ON
1	Time	
2	Cassette eject	
3	Video power supply	
4	CC DOWN	
5	Start/Stop	
6	Camera power supply	

Operating procedure:

Order	Page	Address	Data	Procedure
1	2	00	3F	After setting the data, press the PAUSE button.
2	2	01		ON/OFF of each key switch can be known by discriminating the bit value of each display data.

9. Key input check (A/D port)

- VC-167 board

Display data / Address	00~20	21~60	61~A0	A1~E0	E1~FF
2E (KEY AD0: IC303 (82))	• STOP (S307)	• REW (S305)	• FF (S306)	• PAUSE (S304)	No key input
2F (KEY AD1: IC303 (83))	• PB (S303)	• EDIT SEARCH (−) (S302)	• EDIT SEARCH (+) (S301)		No key input
30 (KEY AD2: IC303 (84))	COUNTER RESET (CF-43 board S482)	TITLE (CF-43 board S301)			No key input
31 (S/S MODE SW: IC303 (85))	START/STOP MODE (CF-43 BOARD : S485)				
	5 SEC REC				
32 (PROGRAM AE: IC303 (86))	PROGRAM AE (CF-43 BOARD : S489)				
		AE SPORT	AE SHUTTER	AE TWILIGHT	AUTO

Operating procedure:

Order	Page	Address	Data	Procedure
1	2	00	01	After setting the data, press the PAUSE button.
2	2	2E~32		From the display data of each address, it can be known which key is being pressed.

10.Individual operation of drum, capstan and loading motor

Data	Operation
00	Normal
02	Drum rotation in normal direction
06	Capstan rotation in normal direction
08	Capstan rotation in reverse direction
0A	Loading motor rotation in normal direction
0C	Loading motor rotation in reverse direction
01	All motors stop.
03	
05	
07	
09	
0B	
0D	
0F	

Operating procedure:

Order	Page	Address	Data	Procedure
1	7	00	02	After setting the data, press the PAUSE button.
2	7	0E	01	Individual operation of motors is approved.
3	7	11		Motor can be operated individually by setting the above described data.
4				Turn the main power (7.2 V) OFF.

3-4. SERVO SYSTEM ADJUSTMENTS

1. SYNC level and BURST level adjustments

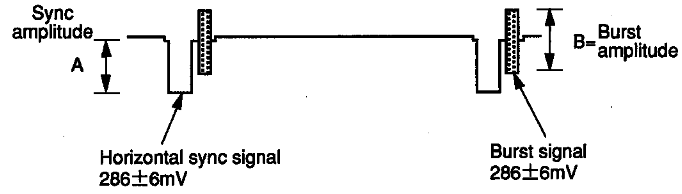
Purpose: Adjust the sync and burst level of the camera output to the specified values.

Adjustment error: The playback machine can lose lock of the servo systems if the sync level is too low. The playback color will become too thick if the burst level is low.

Mode	Camera record
Subject	Color bar chart: standard picture frame
Measurement point	VIDEO output terminal (terminated in 75Ω)
Measuring equipment	Oscilloscope
Adjustment page	F
Adjustment address	28 (SYNC LEVEL) 29 (BURST LEVEL)
Specifications	A = 286 ±6 mV (SYNC LEVEL) B = 286 ±6 mV (BURST LEVEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	03	After setting the data, press the PAUSE button.
3	F	28		Change the data using the PLAY and STOP buttons until the SYNC LEVEL (A) satisfies the specification.
4				Press the PAUSE button.
5	F	29		Change the data using the PLAY and STOP buttons until the BURST LEVEL (B) satisfies the specification.
6				Press the PAUSE button.
7	6	01	00	After setting the data, press the PAUSE button.
8	6	00	00	After setting the data, press the PAUSE button. (End)



2. Switching position adjustment

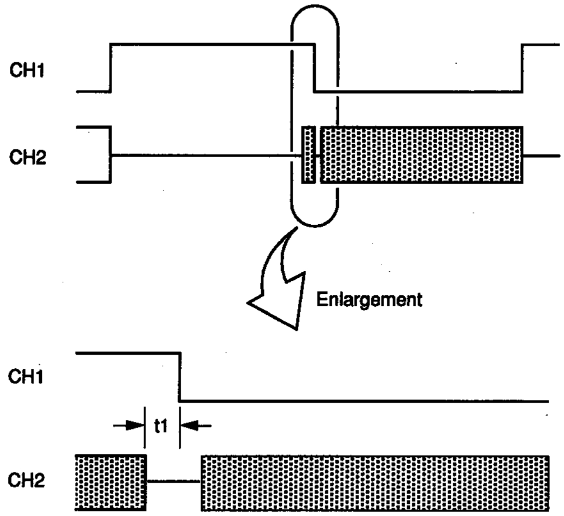
Purpose: Removes vertical mechanical error of head assembling.

Adjustment error: Skew picture.

Mode	Playback
Signal	Alignment tape : For adjustment tracking (WR5-1NP)
Measurement Point	CH1 : ⑧ of CN102 (RF SWP) CH2 : ① of CN102 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	0A 0B
Specification Value	t1= 0 ± 10 μ sec

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	0B	80	Initial setting.
3	F	0B		Change the data with the PLAY and STOP buttons, and minimize t1.
4				Press the PAUSE button.
5	F	0A		Change the data with the PLAY and STOP buttons, and minimize t1.
6				Press the PAUSE button.
7				Check that tl satisfies the specified value. If not, repeat steps 3 to 6 in order.
8	6	00	00	After setting the data, press the PAUSE button. (End)

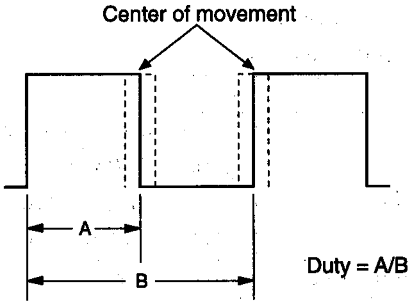


3. Capstan FG offset adjustment

Purpose: Adjusts duty ratio of capstan FG signal

Adjustment error: Jitter can increase.

Mode	CAM-REC (SP)
Signal	Any signal
Measurement Point	CN102 pin⑨
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	12
Specification Value	Duty = 50 ± 1.5%



Duty = A/B x 100 [%]

Adjustment procedure:

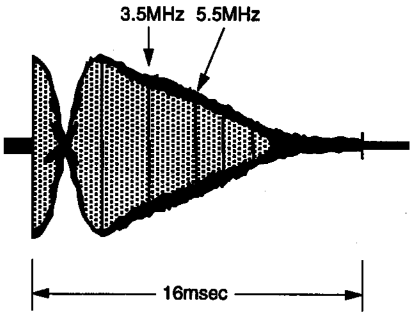
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	12	80	After setting the data, press the PAUSE button.
3	F	12		Change data using PLAY and STOP buttons so that the duty ratio A/B satisfies the specification.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

3-5. PLAYBACK FREQUENCY RESPONSE CHARACTERISTICS ADJUSTMENT

Purpose: Remove variation of picture quality between heads due to difference of characteristics.

Adjustment error: Flicker or over-modulation of playback picture.

Mode	Playback
Signal	Alignment tape: Normal mode frequency response characteristics adjustment (WR5-6N)
Measurement Point	Check connector (CH1: CN102 pin① (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	22 23
Specification Value	3.5 MHz level : 5.5 MHz level = 4 : (3.0 ±0.2)



Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	22		Change data using PLAY and STOP buttons to adjust the level ration between 3.5 MHz level and 5.5 MHz level of the PB RF waveform of channel "1a" satisfies the specification. Press the PAUSE button. Playback mode.
3	F	23		Adjust the channel "2a" in the same way (address 23). Press the PAUSE button. Playback mode.
4	6	00	00	After setting the data, press the PAUSE button. (End)

3-8. PB CHROMA LEVEL CHECK

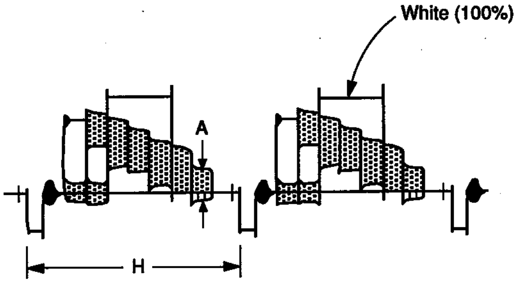
Purpose: The playback chroma level is kept to constant level.

Adjustment error: Color of playback picture can be thinner or thicker than normal picture.

Mode	Playback
Signal	Alignment tape: color bar segment of operation check tape • Normal mode WR5-5NSP
Measurement Point	CN102 pin⑥
Measuring Instrument	Oscilloscope
Adjustment Page	
Adjustment Address	
Specification Value	A=150±15mVp-p (BURST LEVEL)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Playback the color bar segment of the normal mode alignment tape (WR5-5NSP).
2				Check that the burst signal level satisfies the specification.



3-9. PB Y OUT LEVEL ADJUSTMENT

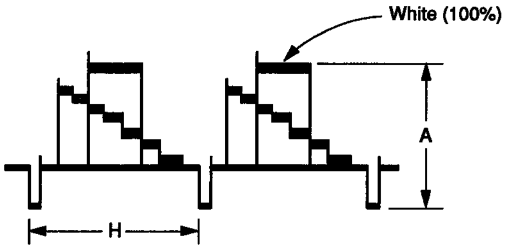
Purpose: Adjusts playback video level for the specification value.

Adjustment error: Playback picture can be too brighter or too darker than normal picture.

Mode	Playback
Signal	Alignment tape: color bar segment of operation check tape • Normal mode WR5-5NSP
Measurement Point	VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1B
Specification Value	A=1.00±0.05Vp-p

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Playback the color bar segment of the normal alignment tape (WR5-5NSP)
3	F	1B		Change data using PLAY and STOP buttons so that the playback signal level (A) satisfies the specification.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)



3-10. FE OSC CHECK

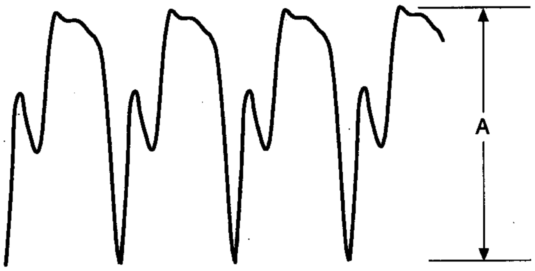
Purpose: Check the oscillating frequency and level of the flying erase (FE) signal.

Adjustment error: If REC-PAUSE recording is repeated, unerased area is left in the junctions between the editings which results in increase of noise or previous picture can be seen.

Mode	CAM-REC
Signal	Any signal
Measurement Point	CN101 pin ⑪
Measuring Instrument	Oscilloscope and frequency counter
Adjustment Page	
Adjustment Address	
Specification Value	A=7.0Vp-p or more (MP mode) f=7.2±0.5MHz (MP mode)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Insert a normal MP type tape.
2				Make a recording.
3				Check that the FE signal level satisfies the specification.
4				Check that the FE signal frequency satisfies the specification.



f=7.2±0.5MHz

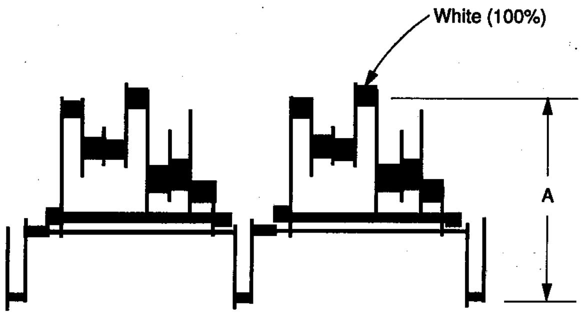
3-11. EMPHASIS INPUT LEVEL ADJUSTMENT

Purpose:	Adjusts the record emphasis characteristics to the specification value.
Adjustment error:	Luminance signal smear, blurred picture, too much emphasized edge of overall video characteristics.

Mode	CAM-REC
Signal	Color bar chart
Measurement Point	· CN102 PIN④ · VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1A
Specification Value	A=(Vo×0.96×500) mVp-p± 2%

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	47	After setting the data, press the PAUSE button.
3				Measure amplitude of the VIDEO OUT. The measured value is "Vo"[V].
4	F	1A		Change data using PLAY and STOP buttons so that the Y signal level at CN102 pin④ (A) satisfies the specification.
5				Press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)

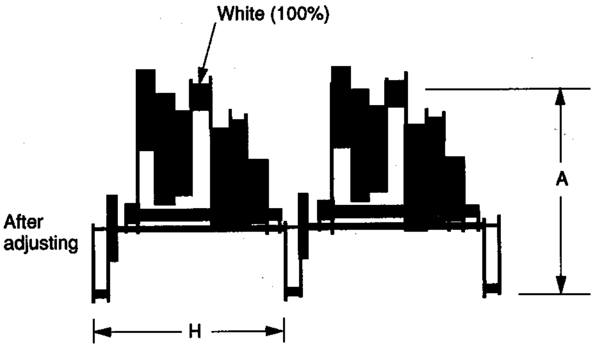


3-12. Y FM DEVIATION ADJUSTMENT

Purpose: Adjusts the FM signal to be recorded on tape to the 8 mm format. (Adjusts the frequency deviation of normal mode Y FM signal.)

Adjustment error: Too bright or too dark overall picture. Overmodulation picture. (If deviation is too wide,or too narrow.)

Mode	CAM-REC and playback
Signal	Color bar chart
Measurement Point	· CN102 pin② · VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	17
Specification Value	A=(Vo×0.96)Vp-p±2%



Related Adjustments:

"Normal mode Y FM deviation adjustment"

Note : The "Emphasis input level adjustment", "PB Y level adjustment", must have already been completed.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Insert a normal MP type tape.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3	6	01	47	After setting the data, press the PAUSE button.
4				Shoot and record the color bar chart. The video out level at that setup is "Vo".
5				Playback the recorded signal.
6				Compare the playback signal level (A) with the specification value. If the specification value is satisfied, the adjustment is complete.
7	F	17		If the specification value is not satisfied, change data using PLAY and STOP buttons. • If the playback signal level is bigger than the specification value, decrease the data. • If the playback signal level is smaller than the specification value, increase the data.
8				Press the PAUSE button.
9				Return to step 4.
10	6	01	00	After setting the data, press the PAUSE button.
11	6	00	00	After setting the data, press the PAUSE button. (End)

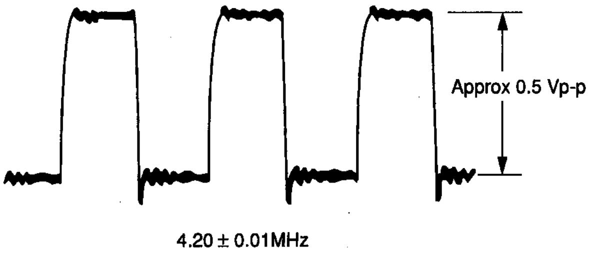
3-13. Y FM CARRIER FREQUENCY ADJUSTMENT

Purpose:	Adjusts the FM signal to be recorded on tape to the 8 mm format. (Adjusts the carrier frequency of normal mode Y FM signal.)
Adjustment error:	(If frequency is low) Overall picture will be blurred signal. (If frequency is high) Overall picture will have black streaking noise. S/N will be deteriorated.

Mode	CAM-REC
Signal	Any signal
Measurement Point	IC201 pin㊶
Measuring Instrument	Frequency counter, Oscilloscope
Adjustment Page	F
Adjustment Address	19
Specification Value	4.20±0.01MHz

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	43	After setting the data, press the PAUSE button.
3	F	19		Change data using PLAY and STOP buttons so that the Y signal level (A) satisfies the specification. (Record mode)
4				Press the PAUSE button.
5	6	01	00	After setting the data, press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)



3-14. CHROMA EMPHASIS fo ADJUSTMENT

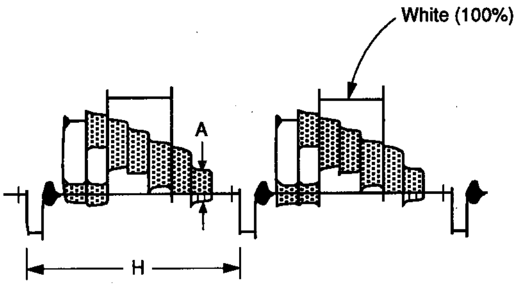
Purpose: Adjust fo of the chroma emphasis to the specified frequency range.

Adjustment error: The bust and chroma level becomes too big during playback.

Mode	Playback
Signal	Color bar signal (WR5-5NSP)
Measurement Point	IC201 pin ㉑
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1E
Specification Value	Minimizes the chroma component (A in the following diagram)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	1E		Change data so that the chroma component (A) is minimized.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)



3-15. REC Y LEVEL ADJUSTMENT

Purpose: Maintains a constant level of Y FM, chroma AFM and ATF signals when recording on tape.

Adjustment error: (If level is low) Poor S/N of playback picture
(If level is high) Black streaking noise appears.

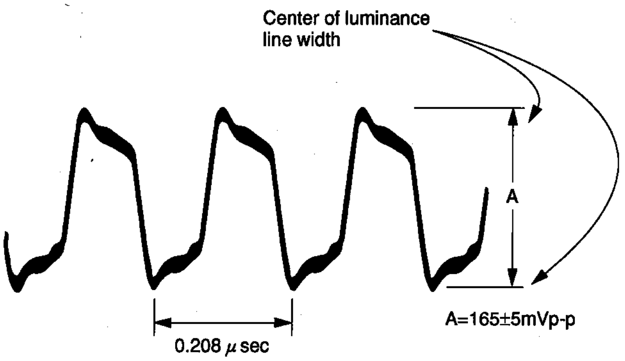
Connection: Connect CN102 pin⑧ (RF SWP) to GND.

Mode	CAM-REC (SP)
Signal	No signal
Measurement Point	CN102 pin② (check connector)
Measuring Instrument	Oscilloscope (Note)
Adjustment Page	F
Adjustment Address	1F
Specification Value	A=165±5mVp-p

Note : Use the MP type tape. If an oscilloscope has the bandwidth limiting switch, set to on position.

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Insert the MP tape to establish record mode.
3	6	01	43	After setting the data, press the PAUSE button.
4	F	1F		Change data using PLAY and STOP buttons so that the REC Y RF level (A) satisfies the specification.
5				Press the PAUSE button.
6	6	01	00	After setting the data, press the PAUSE button.
7	6	00	00	After setting the data, press the PAUSE button. (End)



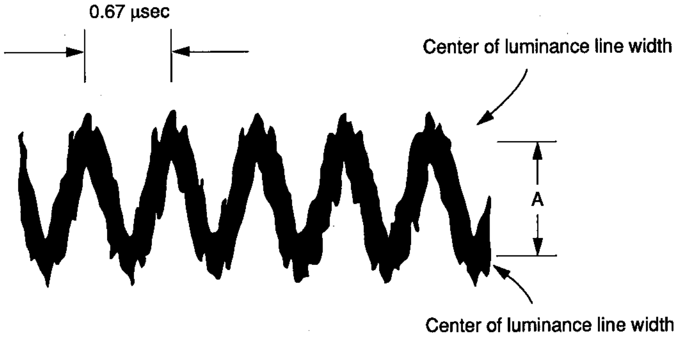
3-16. REC L LEVEL ADJUSTMENT

Purpose:	Maintains a constant level of chroma, AFM and ATF signals when recording on tape.
Adjustment error:	If level is low, audio distortion increases, ATF servo loses lock, and chroma S/N deteriorates. If level is high, Y S/N deteriorates and white streaking noise appears.

Mode	CAM-REC (SP)
Signal	No signal
Measurement Point	CN102 pin② (check connector)
Measuring Instrument	Oscilloscope Frequency bandwidth limitation: 20 MHz OFF
Adjustment Page	F
Adjustment Address	21
Specification Value	A=8.494±0.3mV (AFM Level)

Adjustment procedure:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	6	01	43	After setting the data, press the PAUSE button.
3	F	21		Change data using PLAY and STOP buttons so that the AFM signal level (A) satisfies the specification.
4				Press the PAUSE button.
5	6	01	00	After setting the data, press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)


0.67 µsec
Center of luminance line width
A
Center of luminance line width

3-17. REC C LEVEL ADJUSTMENT

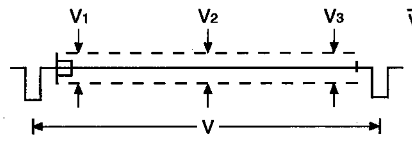
Purpose: Maintains a constant chroma level when recording on tape.

Adjustment error: If level is low, overall S/N deteriorates.
If level is high, S/N of Y signal at deep color deteriorates and white streaking noise appears.

Mode	CAM-REC
Signal	White pattern (See page 6-2)
Measurement Point	· CN102 pin② (Check connector) · VIDEO output terminal (terminated in 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	20
Specification Value	$A=\left(33.8\times\frac{\overline{Vo}}{714}\right)$mVp-p±2mVp-p

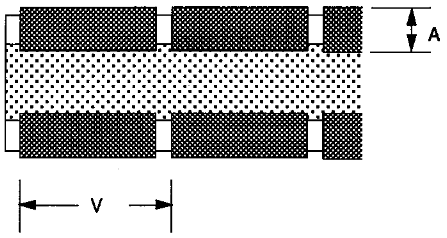
Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Shoot the all white pattern to the full picture frame.
2	6	00	01	After setting the data, press the PAUSE button. (Preparation)
3	6	01	45	After setting the data, press the PAUSE button.
4				Measure the chroma output level of the VIDEO OUT connector. Obtain the average value of three points (beginning, middle, end) of a vertical period. Call the average value $\overline{Vo}$ (mV).
5	F	20		Change data using PLAY and STOP buttons so that the REC signal at CN102 pin② amplitude (A) satisfies the specification.
6				Press the PAUSE button.
7	6	01	00	After setting the data, press the PAUSE button.
8	6	00	00	After setting the data, press the PAUSE button. (End)



VIDEO OUT Signal

$$\overline{Vo}=\left(\frac{V_1+V_2+V_3}{3}\right)$$



6-4. AUDIO SYSTEM ADJUSTMENT

- The right channel (STEREO) adjustment is performed in STEREO MODEL only.
- Use the alignment tape (MONO : WR5-5NSP) (STEREO : WR5-9NS) for audio system adjustment.
- Connect an audio input signal from VC-167 board CN501 as shown in Fig.6-4-1.

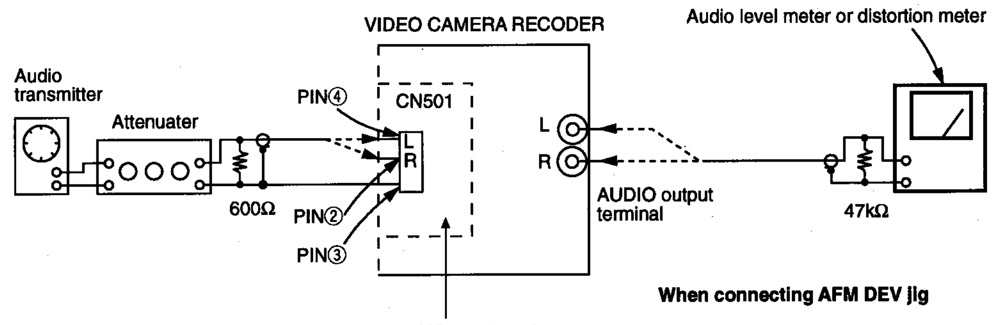
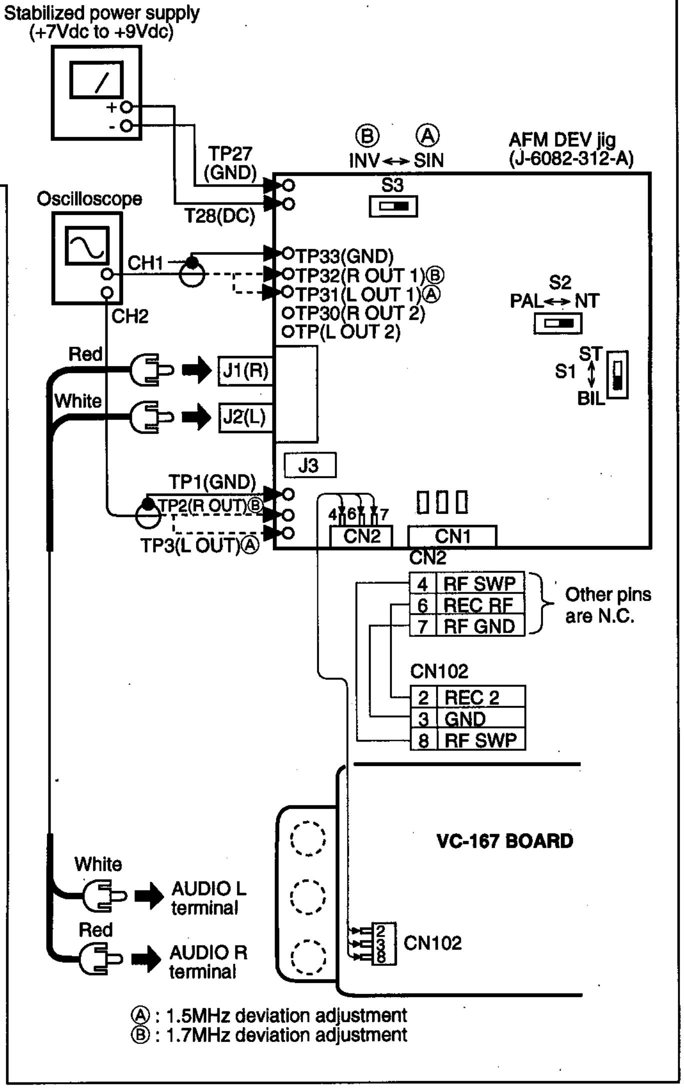

VIDEO CAMERA RECODER
Audio level meter or distortion meter
Audio transmitter
Attenuater
PIN④
CN501
L
R
L
R
600Ω
PIN②
PIN③
AUDIO output terminal
47kΩ
VC-167 board

Fig.6-4-1

When connecting AFM DEV jig


Stabilized power supply (+7Vdc to +9Vdc)
+
-
TP27 (GND)
T28(DC)
Ⓑ Ⓐ
INV↔SIN
S3
AFM DEV jig (J-6082-312-A)
Oscilloscope
CH1
CH2
TP33(GND)
TP32(R OUT 1)Ⓑ
TP31(L OUT 1)Ⓐ
TP30(R OUT 2)
TP(L OUT 2)
S2
PAL↔NT
ST
S1
BIL
Red
White
J1(R)
J2(L)
J3
TP1(GND)
TP2(R OUT)Ⓑ
TP3(L OUT)Ⓐ
4 6 7
CN2
CN1
CN2
4 RF SWP
6 REC RF
7 RF GND
Other pins are N.C.
CN102
2 REC 2
3 GND
8 RF SWP
VC-167 BOARD
White
AUDIO L terminal
Red
AUDIO R terminal
2
3
8
CN102
Ⓐ : 1.5MHz deviation adjustment
Ⓑ : 1.7MHz deviation adjustment

4-1. EE-OUTPUT LEVEL CHECK

Mode	Record
signal	CN501 PIN ④ INPUT (Left) CN501 PIN ② INPUT (Right) 400 Hz, −38 dBs
	Audio input from CN501 pin④ ②
Measurement Point	AUDIO output terminal (Left/Right) (no load)
Measuring Instrument	Audio level meter
Specification Value	−7.5 ±2.0 dBs

Check procedure

Order	Procedure
1	Check that 400 Hz signal level satisfies the specification.

4-2. 1.5 MHz DEVIATION ADJUSTMENT (STEREO MODEL)

Purpose: Determines spectrum of the modulated L-ch (L+R/2 signal) signal during recording.

Adjustment error: Audio signal crosstalk deteriorates and audio level decreases in both record and playback modes.

Mode	Record
Signal	AFM DEV adjustment tool output signal to left and right channels of audio input connector
Measurement Point	CH1: TP31 of the AFM DEV adjustment tool CH2: TP3 of the AFM DEV adjustment tool
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	F
Adjustment Address	13
Specification Value	Difference (A) between CH1 and CH2 signals is 40 mV or less.

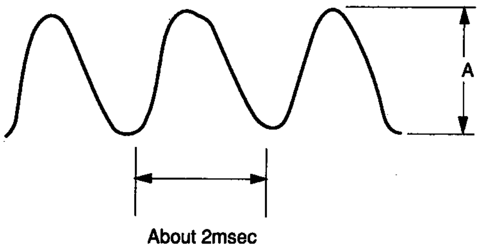
Connection

1) Connect CH2 of the AFM DEV adjustment tool and CN102 of VC-167 board.
2) Connect the audio output terminals (J1, J2) of the AFM DEV adjustment tool and Video/Audio input/output connector of the machine to be adjusted.
3) Connect DC power supply (+7 to +9V dc) to TP28 (DC), and TP27 (GND) of the AFM DEV adjustment tool.
4) Set the switches of the AFM DEV adjustment tool to the following positions.

S1 — BIL position
S2 — NT position
S3 — SIN position

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Select the same vertical sensitivity of CH1 and CH2 of oscilloscope.
2				Set the oscilloscope to ADD mode and set CH2 to INV mode.
3	6	00	01	After setting the data, press the PAUSE button. (Preparation)
4	F	13		Change data using PLAY and STOP buttons so that the audio level difference (A) is minimized.
5				Press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)



4-3. 1.7MHz DEVIATION ADJUSTMENT (STEREO MODEL)

Purpose:	Determines spectrum of the modulated R-ch (L-R/2 signal) signal during recording.
Adjustment error:	Audio signal crosstalk deteriorates and audio level decreases in both record and playback modes.

Mode	Record
Signal	AFM DEV adjustment tool output signal to left and right channels of audio input connector
Measurement Point	CH1: TP32 of the AFM DEV adjustment tool CH2: TP2 of the AFM DEV adjustment tool
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	F
Adjustment Address	14
Specification Value	Difference (A) between CH1 and CH2 signals is 40 mV or less.

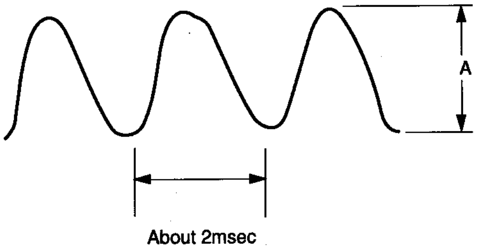
Connection

1) Connect CH2 of the AFM DEV adjustment tool and CN102 of VC-167 board.
2) Connect the audio output terminals (J1, J2) of the AFM DEV adjustment tool and Video/Audio input/output connector of the machine to be adjusted.
3) Connect DC power supply (+7 to +9V dc) to TP28 (DC), and TP27 (GND) of the AFM DEV adjustment tool.
4) Set the switches of the AFM DEV adjustment tool to the following positions.

S1 — BIL position
S2 — NT position
S3 — INV position

Adjustment procedure:

Order	Page	Address	Data	Procedure
1				Select the same vertical sensitivity of CH1 and CH2 of oscilloscope.
2				Set the oscilloscope to ADD mode and set CH2 to INV mode.
3	6	00	01	After setting the data, press the PAUSE button. (Preparation)
4	F	14		Change data using PLAY and STOP buttons so that the audio level difference (A) is minimized.
5				Press the PAUSE button.
6	6	00	00	After setting the data, press the PAUSE button. (End)



4-4. 1.5MHz DEVIATION ADJUSTMENT (MONO MODEL)

Purpose: 1.5MHz deviation adjustment. Error in this adjustment value means loss of tape inter change ability.

Mode	Playback
Signal	Alignment tape : For checking operations (WR5-5NSP)
Measurement	AUDIO output terminal.
Measuring Instrument	Oscilloscope, level meter
Adjustment Page	F
Adjustment Address	13
Specified Value	−7.5±0.5dBs

Adjustment method:

Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2	F	13		Change the data with the PLAY and STOP buttons, and adjust the 400Hz signal level to specified value.
3				Press the PAUSE button.
4	6	00	00	After setting the data, press the PAUSE button. (End)

4-5. BPF fo ADJUSTMENT

Purpose: Optimizes fo of BPF inside IC.

Adjustment error: Incorrect discrimination of monaural/stereo and increase of noise at high output of audio volume are resulted.

Mode	Playback
Signal	Alignment tape :(WR5-9NS) (STEREO) :(WR5-5NSP) (MONO)
Measurement Point	AUDIO output terminal (Left/Right)
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	15
Specification Value	Distortion : 1% or less.

Adjustment procedure:

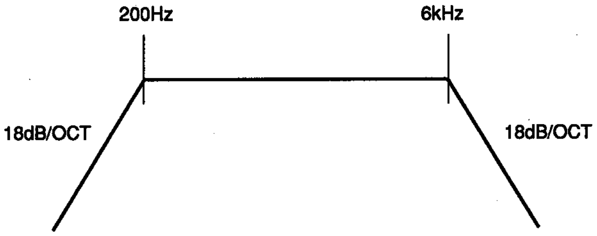
Order	Page	Address	Data	Procedure
1	6	00	01	After setting the data, press the PAUSE button. (Preparation)
2				Playback the 400 Hz segment of the WR5-9NS (STEREO)/WR5-5NSP (MONO) alignment tape.
3	F	15		Change data using PLAY and STOP buttons so that distortion factor is minimized.
4				Press the PAUSE button.
5	6	00	00	After setting the data, press the PAUSE button. (End)

4-6. OVERALL SIGNAL LEVEL, DISTORTION AND SEPARATION CHECK

Purpose:

Mode	CAM-REC and playback
Signal	① CN501 pin ④ :400Hz, -38dBs CN501 pin ② : No signal ② CN501 pin ④ :No signal CN501 pin ② :400Hz, -38dBs
Measurement Point	AUDIO output terminal (Left) AUDIO output terminal (Right)
Measurement Instrument	Audio level meter and distortion meter
Specification Value (Note)	Signal level ① Left output : -7.5 ± 2dBs Right output : -27.5dBs or less ② Left output : -27.5dBs or less Right output : -7.5 ± 2dBs Distortion Left/Right output : 0.8% or less

Note : The value when band-pass filter of 200Hz to 6kHz is used.



Check procedure:

Order	Procedure
1	Input 400Hz, -38dBs signal to CN501 pin ④. Short pin ② and ③ of CN501.
2	Check that the right and left channels of AUDIO output terminal satisfy the specification ①. Check that distortion satisfies the specification.
3	Input 400Hz, -38dBs signal to CN501 pin ②. Short pin ③ and ④ of CN501.
4	Check that the right and left channels of AUDIO output terminal satisfy the specification ②. Check that distortion satisfies the specification.

4-7. OVERALL NOISE LEVEL CHECK

Purpose: Checks noise level.

Mode	CAM-REC and playback
Signal	No signal: VC-167 board CN501 (Note)
Measurement Point	AUDIO output terminal (Left/Right)
Measuring Instrument	Audio level meter (using IHF-A curve weighting filter)
Specification Value	−65 dBs or less

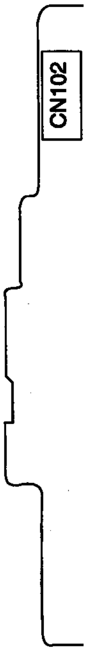
Note : Before making short circuit between CN501 pin③ and pin④, pin③ and pin②, remove the flexible board from CN501

Check procedure:

Order	Procedure
1	Insert a shorting to pin③ and pin④, pin③ and pin② as CN501.
2	Make recording.
3	Remove the shorting plug.
4	Playback the recorded segment.
5	Confirm that the noise level at audio output terminal (Left/Right) is −65 dBs or less.

ARRAN

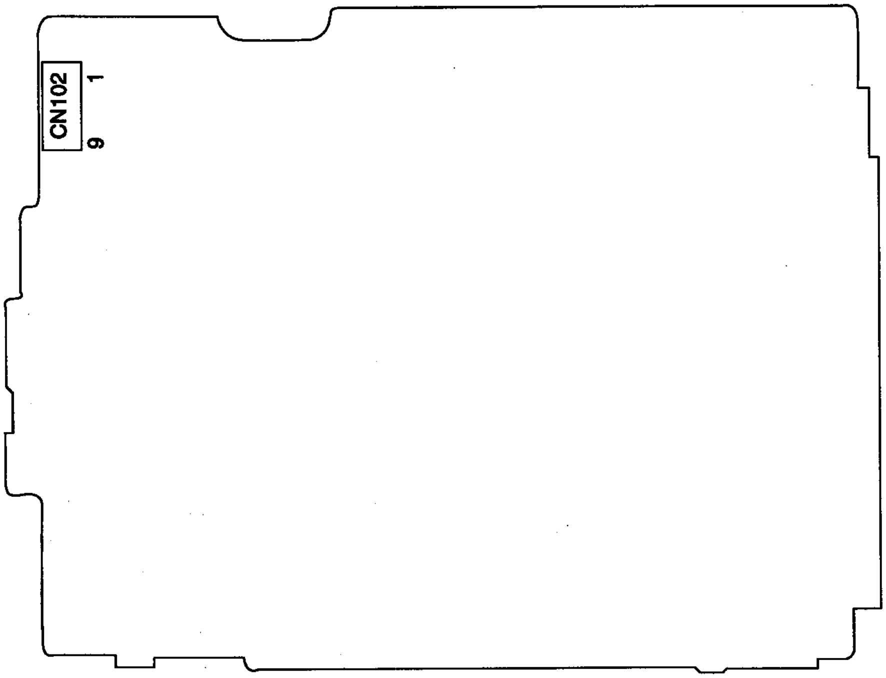
VC-167



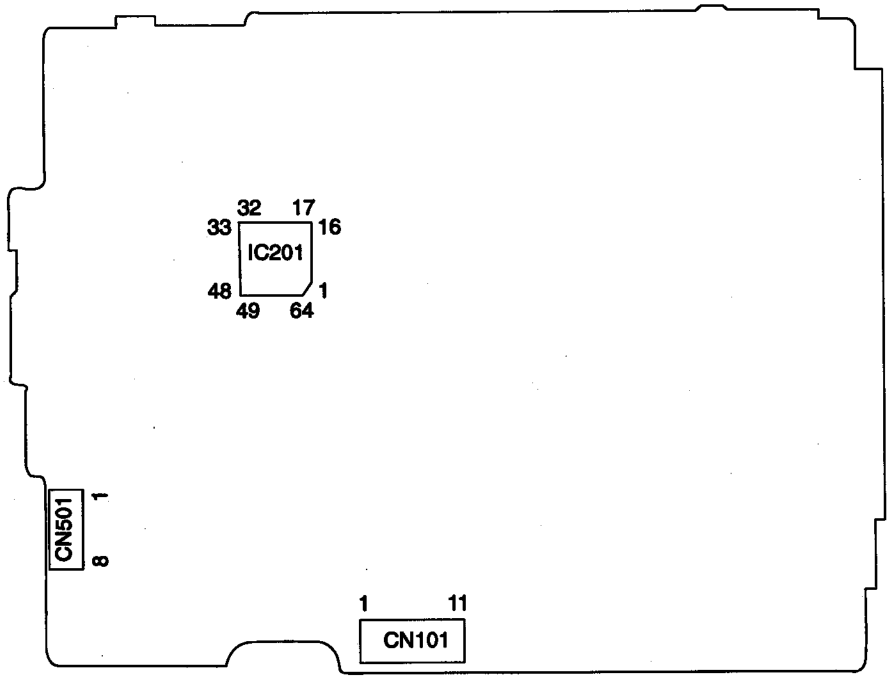
VC-167

ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-167 BOARD (SIDE A)



VC-167 BOARD (SIDE B)

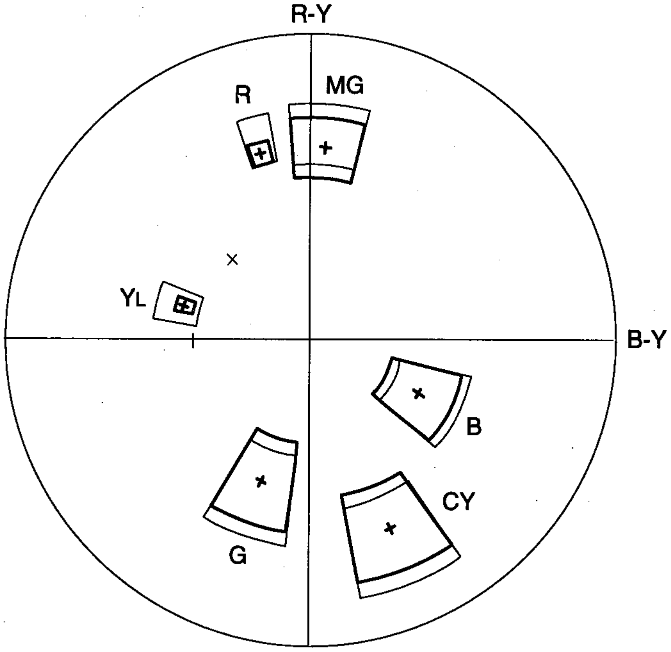

32
17
33
16
IC201
48
1
49
64
CN501
1
8
1
11
CN101

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

⊞ : WEIGHT OFF MODE

☐ : WEIGHT ON MODE

Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use.

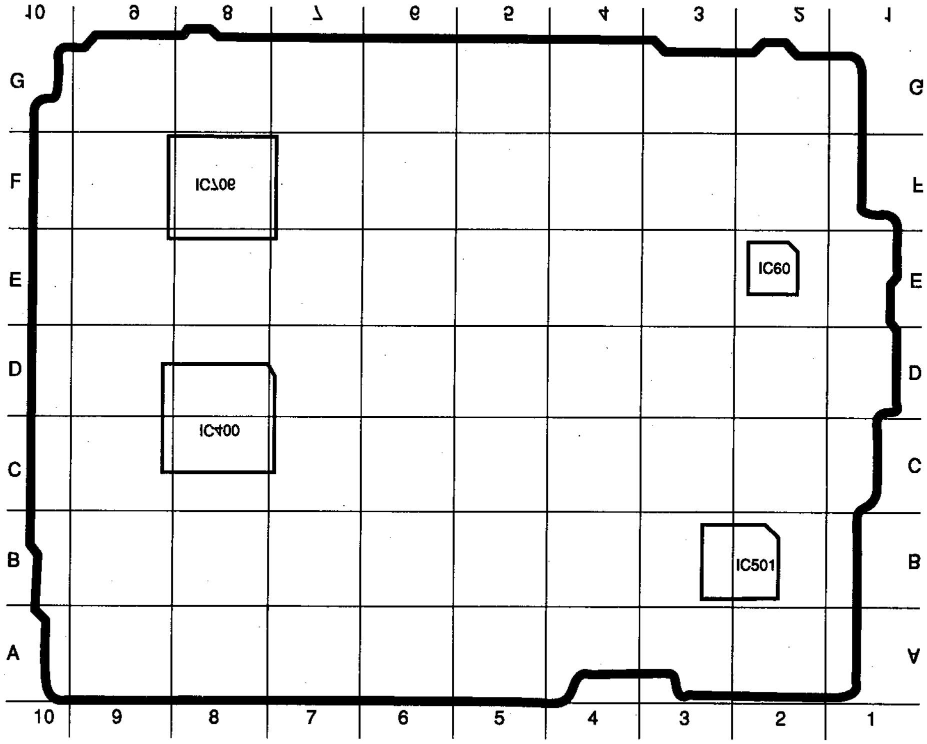

R-Y
R
MG
YL
B-Y
B
CY
G

CCD-TR88/TR98/TR99/TR590/TR814

〈PARTS REFERENCE SHEET〉

You can find the parts position of mount locations applying to VC-167 board of a set.

VC-167 CCD-TR88/TR98/TR99/TR590/TR814 SIDE A


10
9
8
7
6
5
4
3
2
1
G
F
E
D
C
B
A
IC706
IC60
IC400
IC501

SIDE B CCD-TR88/TR98/TR99/TR590/TR814 VC-167